THE Lumberman

DECEMBER, 1955

Loggers Share Wave Lengths

Pine Foresters Battle Porkies

Torque Converters Aid Logging Trucks . . . . . Page 106

A MILLER FREEMAN PUBLICATION

50 cents

Here's How HYSTER® *PLANNED* MATERIALS HANDLING SAVES TIME AND MONEY in lumber yards

Here are typical examples of how Hyster Industrial Trucks are helping to make *tremendous* savings in materials handling costs in *lumber yards*.

Whether you are now using lift trucks, or haven't ever used industrial trucks of any kind, your Hyster Dealer is ready to help you achieve cost reductions. Because he keeps abreast of the materials handling problems and improvements, he has helped many lumber yards realize more profit from their operations. *Why not call him today* and take advantage *of his specialized services? Materials Handling Trucks from 1,000 to 30,000 pound capacities.*

RC-150 SERVES TO KEEP AREAS CLEAR of loads at cutoff or re-saw stations and conveyor line stacking areas. Average load is 2500' dimensional lumber.

HYSTER DEALERS GIVE YOU ALL 3

1. PLANNING. Your Hyster Dealer will plan your materials handling operation from scratch — or will analyze your present system to see if it can be improved.

2. THE RIGHT TRUCK for *your* job from Hyster's complete line of industrial trucks (1,000-30,000 lbs) and over 100 job-attachments.

3. THE RIGHT SERVICE—ample spare parts stock, shop facilities, factory-trained mechanics and an efficient field service that keep your Hyster lift trucks going on your job, wherever your job might be located. Hyster trucks are noted the world over for their low downtime.

SC-180 HANDLING HARDWOODS. Stacks brought from yard and set on dry kiln cars.

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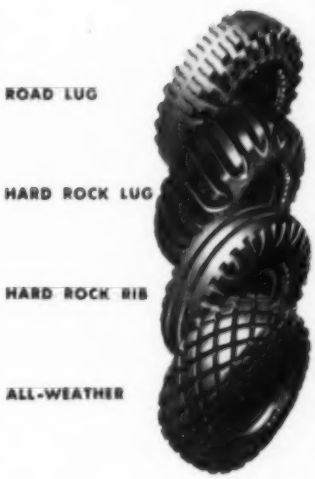
Crown Zellerbach Corporation's 55,000-acre Clackamas Tree Farm is high in the Cascade Mountains in Oregon. 3 company sides and 8 contract sides log 50-million feet of live and salvage timber annually. Trucks and trailers must haul up to 45 miles over private roads to the Willamette River. Goodyear job-proved Road Lugs—made with 3-T NYLON—keep this tightly scheduled operation going with minimum down time.

Down time cut to new lows by strongest, most durable tire cord yet produced—3-T NYLON



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The Goodyear Tire & Rubber Company, Akron, Ohio

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Goodyear, Truck Tire Dept., Akron 16, Ohio

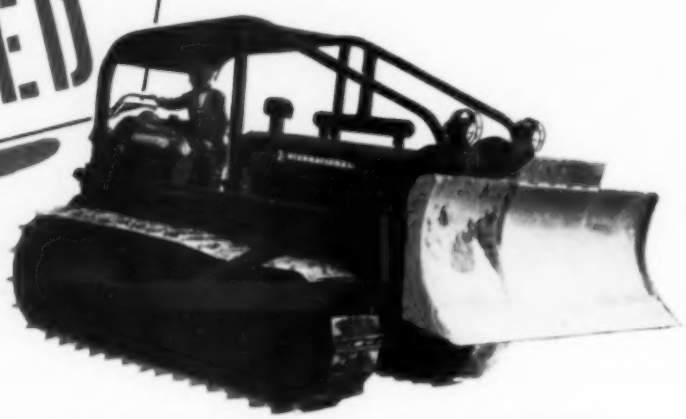
FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE BUILT WITH 3-T NYLON CORD

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

500

"BIG RED" TD-24's DELIVERED



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In the few short years International has built the now famous "Big Red" TD-24, Howard-Cooper has put 500 on the job for customers in Western Oregon and Washington.

Need we say more? This record speaks for itself and proves our point... it pays *all ways to own TD-24's.*

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CONSTRUCTION AND LOGGING TRACTORS • HOUGH PAYLOADERS • BERGER DONKEYS
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THE Lumberman

The Production Journal of the Forest Products Industries Since 1889

DECEMBER, 1955 VOLUME 82, NUMBER 13

FEATURES IN THIS ISSUE

LIST OF INDUSTRY MEETINGS	18
Late Forestry Industries News	8, 12, 18
Tall Timber—John E. Liersch	22
From Woods and Mills	28
Industry Shares Radio Frequencies	76
Foresters Battle Porcupines	78
Specialties Pay Off for Fernwood Industries, Inc.	80
Salvage Nears Completion on 1951 Forks Burn	82
THE LUMBERMAN Picture Page	84
Loading Devices Are Used in B. C. Mills	85
Filer Recalls 68 Years of Progress—G. C. Knapp	86
34th Annual Washington State Forestry Conference	87
Color Photos Aid Salvage—J. F. Wear and J. R. Dilworth	88
Thicker Pavement is Needed	90
Problems Confront Loggers in Rugged Alaskan Tbr. Regions	94
Barker Aids Recovery at Winton Lumber Co.	100
Safety Engineering	104
Torque Converters Save Trucks	106
Specialists Call Halt to Budworm Spraying	124
Fused Plywood is Announced by C-Z Corp.	125
Company Installs 2nd Hardwood Flooring Unit	132
Log and Lumber Prices	136
Machinery & Equipment	138
Advertising Index	160

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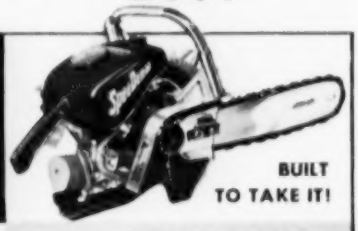
NOW! A heavy duty direct drive saw designed for you, the professional woodcutter, complete at only $239!

BIG TIMBER SpeeDemon 5 HP, 27 LBS.



BUILT TO TAKE IT!

BIG TIMBER PRO 5½ HP, 29 LBS. $259 Most Rugged Geared Saw Available

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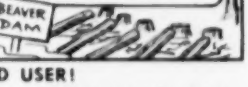

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AIR BRAKE Equipment Modernized...guaranteed units rebuilt at factory include latest engineering improvements of brand new units.

BENDIX-WESTINGHOUSE...factory rebuilt air-brake equipment assures owners lowest operating cost per mile...carries new-unit warranty.

CONVENIENT...simply send or bring in your old unit. We will replace your worn equipment with a factory-reconditioned unit right from our stock.

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Truck and Industrial Equipment Co.

7 N. E. OREGON ST. • PORTLAND 14, ORE.

Ed Buffum, logger, Coos Bay, Oregon

"I'll confidently recommend T5X to any logger..."

"Nothing but Union's *purple* T5X motor oil has ever gone into the crankcase of this International TD14A, and it's always run on regular diesel fuel. I'll confidently recommend T5X to any logger... especially if he's working his equipment under extreme conditions. Here's why —

"The head on this tractor cracked recently due to the severe conditions under which I operate it. When it went into the shop for repairs, we were amazed to find no ridge at the top of piston ring travel in any of the cylinders. *This after 3620 actual clocked hours of rugged service.*

"Everyone who inspected the engine agreed that usually only half that number of hours will result in signs of wear and dirt. However, all the lubricated parts we could observe were bright and clean. In fact, we didn't even need to install new rings, thanks to T5X."

Mr. Buffum's experience with amazing purple T5X is not unusual. Loggers all over the West report similarly excellent results. Try T5X on your show, and you will too!

76 **UNION OIL COMPANY** OF CALIFORNIA

Los Angeles: Union Oil Bldg. • New York: 45 Rockefeller Plaza • Chicago: 1612 Bankers Bldg. • New Orleans: 644 National Bank of Commerce Bldg. • Atlanta: 401 Atlanta National Bldg. • Kansas City, Mo.: 612 W. 47th St.

GETTING OUT THE *BIG ONES!*

HERE is another Northwest on heavy Oregon logging. This one, a rubber-mounted Northwest Model 41, is owned by H. G. Powell of Roseburg, Oregon. The job is at Yoncalla, Ore., and a big percentage of the stuff the machine is handling is big—running up to 5000 bd. ft.

Northwests long ago proved themselves as consistently high producers. There is a long list of Northwest owners that can tell you of high output figures that Northwest equipment has made possible.

Easy to care for because of simple design, they are free of complicated controls that often require special knowledge for adjustment — no air, no valves, no pumps or rams. On Crawler mounted Northwests positive traction on both crawlers at all times makes moving in the woods sure-footed and easy. Uniform Pressure Swing Clutches (and remember no inside or outside band clutch is a uniform pressure clutch) makes spotting accurate, eliminates grabbing that sets loads to swinging and makes loading faster and safer.

These are just a few of the Northwest advantages that make consistent output and longer machine life possible. Remember, too, all Northwests are convertible to Shovel, Standard Crane, Dragline or Pullshovel. This means greater versatility for handling your work and greater value for the man who buys it from you. Don't buy a Log Loader without getting the full story on the Northwest.

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Chicago 3, Illinois

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SAN FRANCISCO, CALIFORNIA
258 Tenth Street

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3707 Santa Fe Avenue

International's Oregon distributor delivers . . .

500 TD-24's

for tough Western construction and logging jobs

Howard-Cooper Corporation, one of International's 31 Western area distributors, have just delivered their *500th TD-24!*

You see this big 200 bhp crawler already at work for Wooley Logging Company, Drain, Oregon.

In rough, tough, Pacific Coast, big-scale logging, mining, and earthmoving, profitable production depends upon positive load-control, up-grade or down. *The TD-24 is the only tractor built that has planet-power steering—which gives you constant load control on both tracks when turning.* That's why the TD-24 out-produces the others so decisively, with dozer, arch, or scraper! Another big TD-24 advantage is its built-for-the-West construction. Records, on fleet after fleet, prove that TD-24's stand up under the toughest conditions—and consistently cost less for maintenance than any other make on tracks! TD-24 high-altitude performance is a big advantage, too—so is its seconds-fast, cold-weather starting and operating ease!

If you're in the market for a big tractor, you owe it to yourself to check the leader . . . the International TD-24. Five hundred owners in just one area have proved it their "Best Buy." If it can so successfully and so profitably lick the tough rock, cold weather, and mountain grades of Oregon, it can successfully and profitably lick your high costs, too. Let us prove its advantages with a demonstration. Call to arrange time and place.

SEATTLE, WASHINGTON
1234 Sixth Avenue, South

SAN FRANCISCO, CALIFORNIA
255 Tenth Street

LOS ANGELES, CALIFORNIA
3707 Santa Fe Avenue

Oregon's 500th TD-24 is already at work. Here, it clears trees and stumps for a new, main truck-haul road near Brush Creek. "I like its torque converter," says Operator Dean Russum. "You get more power without track slippage and you no longer rough up the machine with shock loads."

International Industrial Power

INTERNATIONAL HARVESTER

A machine size for every job . . . see your nearest INTERNATIONAL DISTRIBUTOR for details.

ALSO: International Dust Loaders . . . International Scrapers, Motor Graders, Vibrators . . . and International Superior Pipe-Beam Tractors

The LUMBERMAN'S LATE FOREST INDUSTRIES NEWS

• Judd Greenman, after 50 years of service in the industry, has retired as manager of The Long-Bell Lumber Co's, Vernonia, Ore., Division. In 1910 he went to work for the Union Lbr. & Sgh. Co., Union Mils, Wash., where he remained until 1925 when he became superintendent of the Oregon-American Lumber Co., at Vernonia, of which he became president in 1947. After Long-Bell acquired the operations he became manager of the Division. All his life he served the forest industry in many capacities. He is bd. chairman of National Lumber Manufacturers Association. He will reside at 9911 SW Lynwood Terrace, Portland. C. L. Anderson has succeeded Greenman as manager of the Vernonia operations.

• Thomas W. Dant, president of Dant & Russell, Inc., has announced the appointment of George M. Syversen as general sales manager, with headquarters in Portland, Ore. Syversen, formerly general manager of the Fir-Tex Division, currently is director of Dant & Russell Sales Co., managing director of Fir-Tex Insulating Board, Inc. and executive vice-president and director of Western Insulated Products, Inc. He also serves on the board of directors of both the Insulation Board Institute and the Hardboard Association, national organizations.

• Two Oregon lumbermen, Ralph T. Moore, president of Moore Timber Products Co., Inc., Grants Pass, Ore., and John Gragg, manager of the Associated Plywood Division U.S. Plywood Corp., Eugene, have been named members of the Committee on Manufacture of the U. S. Chamber of Commerce.

• Col. William B. Greeley, 76, died November 30 at home on his own tree farm near Port Gamble, Washington. He had a long record of active participation in forestry in the U. S. Forest Service, U. S. Army, West Coast Lumbermen's Association and ASTI. He remained active in promoting forest conservation and utilization.

• Controlling interest in the Quincy Lumber Co., Quincy, Calif., has been acquired by the Meadow Valley Lumber Co., of Quincy. The Quincy Lumber Co. also had a sawmill at Sloat which was sold not long ago to J. K. Metzker. Ray Smith is president and manager of the Meadow Valley Lumber Co.

• H. O. Schumaker, owner of the Post Falls Lumber Co., Post Falls, Ida., says the company will build a new modern sawmill equipped with a 7-foot double cut head rig. The new mill is expected to get into operation by early summer. This mill will replace one that burned. Ed Justice has been made salesmanager of the Post Falls Lumber Co.

• J. A. "Jim" Eccles has been named salesmanager of the Plywood Division of the Diamond Lumber Co., Portland, Ore. Following the war he went to work for The Long-Bell Lumber Co., and for the past several years has been in the lumber and sales division.

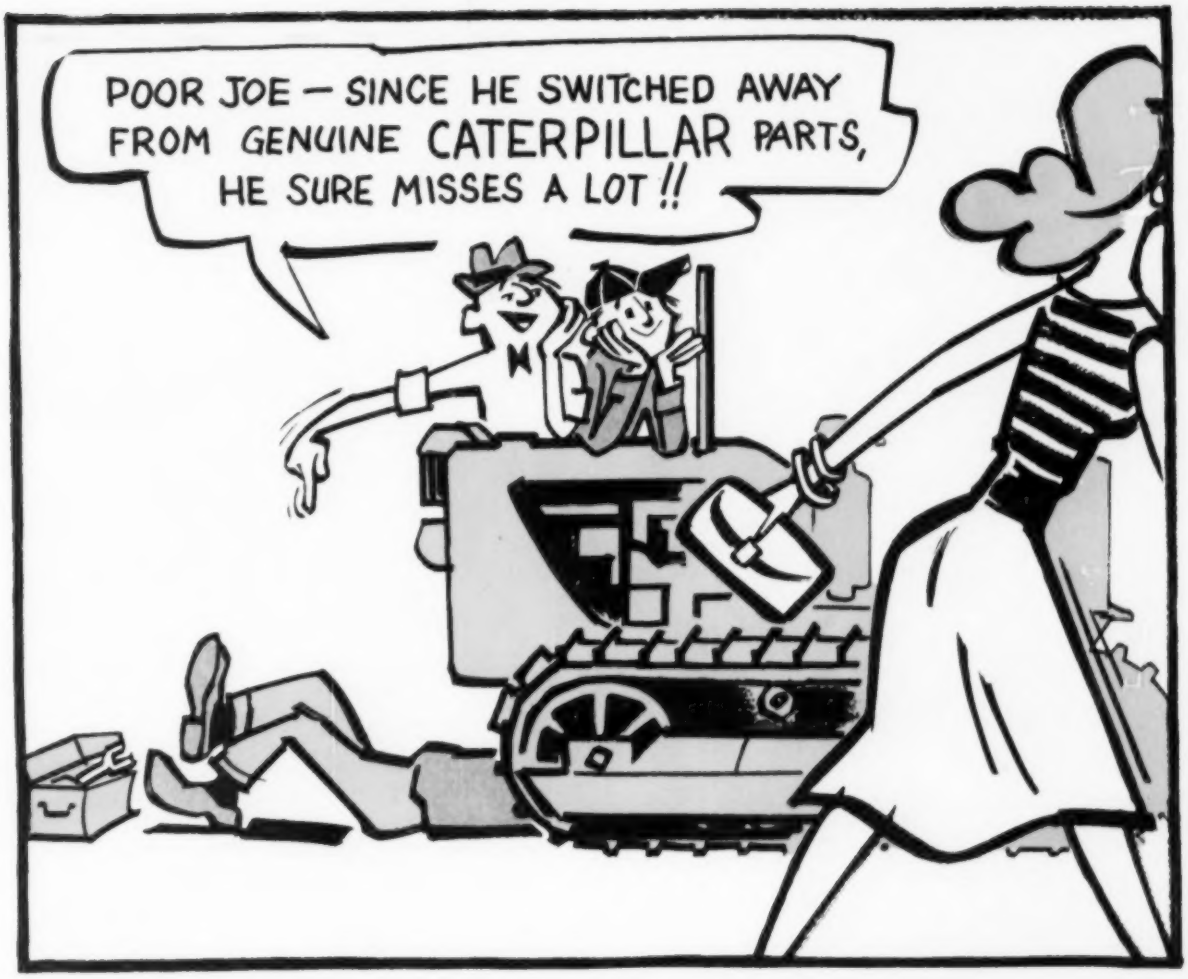
• E. L. Quirk, formerly general manager of operations, has been elected vice-president in charge of operations of Southwest Lumber Mills, large Arizona forest industry activities. He will continue to make his headquarters at Flagstaff. J. B. Edens, Southwest's president, recently announced a special common stock dividend of 30 cents per share.

• Jim Fleishman, well known Portland lumberman has succeeded Orin E. Hollingberry as president of the Northwest Baseball League.

• John L. Kehoe has become mill superintendent at the Willapa Branch of Weyerhaeuser Timber Co., Raymond, Wash. Formerly yard foreman, he succeeds Gordon J. King, deceased.

• Forest protection in Southern Oregon will be intensified as a result of a program now being formulated by the Southern Oregon Conservation and Tree Farm Society. A fire committee with five sub-committees has been named to develop better fire fighting efficiency in Jackson county. Head of the committee is George Flanigan, manager, Elk Lumber Co., Medford, Ore.

• G. C. Lorenz, and his sons Wesley and Glenn J. Lorenz, who recently sold their Lorenz Company hardware and equipment business at Klamath Falls and Medford, Ore., plan to start a logging, sawmilling and plywood industry near Burney, Calif. The Lorenz family has long been interested in the lumber industry in the Klamath Falls region. The new plant will be located on a 350-acre site nine miles northeast of Burney. The company plans to get the plywood plant into operation early in 1956 and the sawmill toward the end of the year. The company now has a sawmill at Spalding, Ida.



Down time is no joke. Say it happens when a clutch facing or a brake lining wears out.

If you replace with a Caterpillar-built part, here's what you're sure of: a friction part that's made of a material with high torque capacity but low friction loss, a long-wearing material that *really* resists glazing and chipping, a tough material that's been through rugged tests in the laboratory, on the proving ground, and out on actual jobs. In short, you're sure of *less* down time in the future.

If you replace with a substitute part—can you be sure of anything?

Better get genuine Caterpillar parts every time.

Caterpillar Tractor Co., San Leandro, Cal.; Peoria, Ill., U. S. A.

These are genuine CAT® brake linings. They're made of a specially designed molded asbestos material. You can't buy better anywhere.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Logging contractors in Washington timber forests supply the Cascade sawmills according to radio schedules. Remote log camp crews use G-E 2-way radio to keep abreast of mill production needs, handle emergencies, and to coordinate operations.

RADIO ties sawmills to logging camps

Cascade Lumber Co., Yakima, Wash., relies on G-E 2-way radio to coordinate work of 5 logging contractors, maintain sawmill log inventories.

Five Pacific-Northwest logging companies direct their logging trucks to sawmills by G-E 2-way radio. The loggers, under contract to Cascade Lumber Co., feed timber to the various mills according to production requirements. The result: loggers keep abreast of mill output—sawmills handle a steady flow of lumber.

Two base stations originate Cascade's radio signals to supervisory vehicles and contractors' equipment. With radio, Cascade has instant contact with contract loggers operating within a 100-mile radius of the headquarters sawmills.

Radio is vitally important to the lumber industry. It serves as a fire warning system, helps speed needed parts to remote crews. Two-way radio aids traffic control over narrow trails, is ready for any emergency.

The new Progress Line of 2-way radio equipment offers G.E.'s-exclusive Plug-In Chassis. All chassis are interchangeable. The new Progress Line transmitter, receiver, and power supply may be switched between sets . . . *instantly.*

2-WAY MOBILE RADIO

See your G-E Communications Counselor for the complete details or, write: *General Electric Company, Communication Equipment, Section X23125, Electronics Park, Syracuse, New York.*

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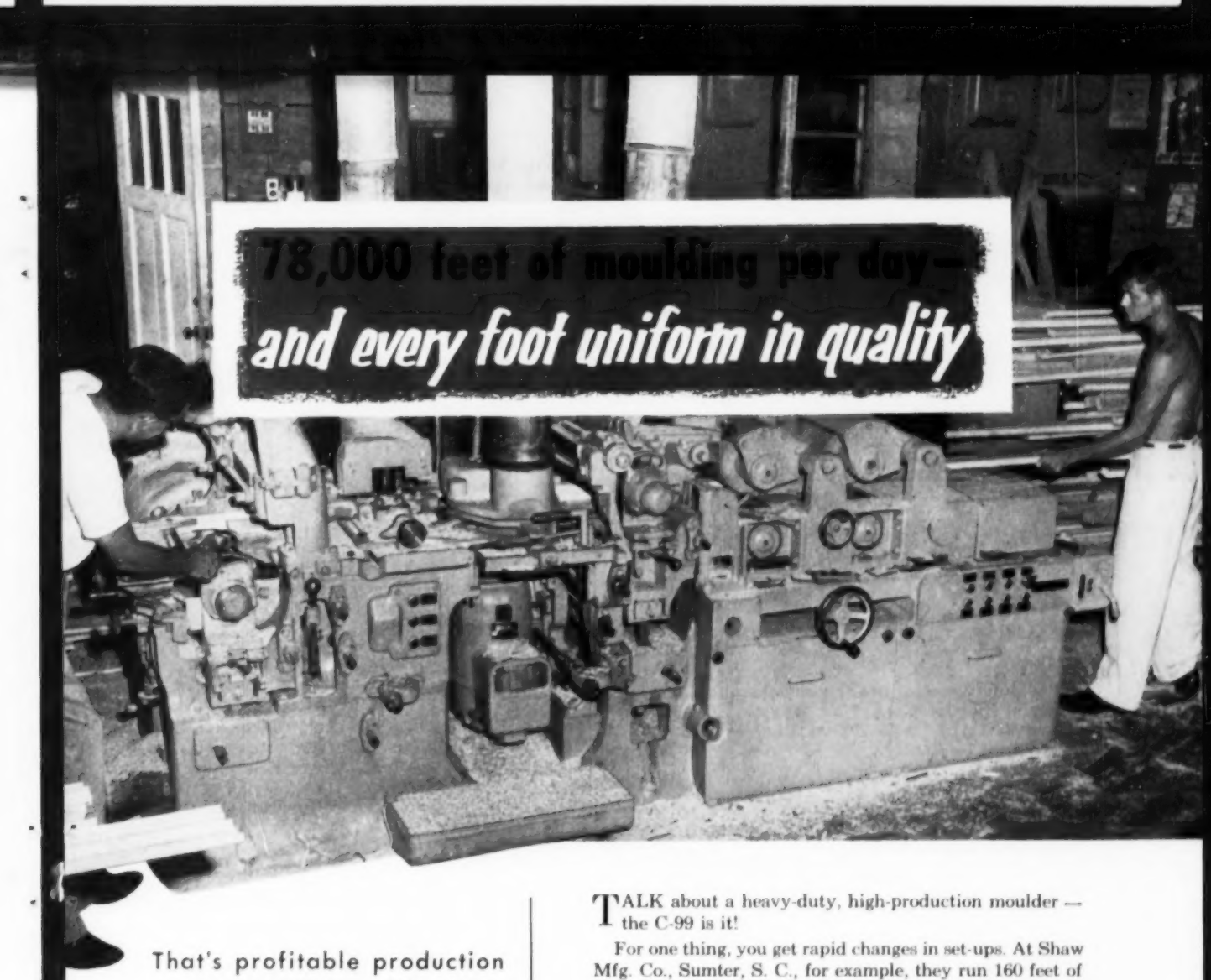
GENERAL ELECTRIC



78,000 feet of moulding per day— and every foot uniform in quality

That's profitable production . . . the kind Shaw Mfg. Co., Sumter, South Carolina, gets from this

Yates-American C-99 Moulder

TALK about a heavy-duty, high-production moulder — the C-99 is it!

For one thing, you get rapid changes in set-ups. At Shaw Mfg. Co., Sumter, S. C., for example, they run 160 feet of moulding per minute. And they use more than 75 different patterns, so changeovers are frequent.

Shaw moulder operators also like these other advantages of the C-99: The powerful feed-works. The upper rolls that adjust themselves to thick or thin lumber. The extra safety provided by the spindle brakes.

G. W. Shaw, president, writes, "There are so many good features about the C-99 moulder that we could hardly enumerate them all. All we have to say is the very highest praise."

See for yourself why woodworkers everywhere are so enthusiastic about the Yates-American C-99 Moulder. Ask the Yates-American man to show you one in actual operation. And mail the coupon for bulletin.

Yates-American

BELOIT, WISCONSIN

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Dept. P, 805 N. Fourth Street, Beloit, Wisconsin
Send me free bulletin on the Yates-American C-99 Moulder.

Name _____
Company Name _____
Address _____
City _____ Zone _____ State _____

Late Forest Industries News

• A fifth plant of the Evans Products Co. is nearing completion at Gold Beach, Ore. The new plant, according to an announcement by E. S. Evans, Jr., president, will produce green veneer used in the manufacture of the company's fir plywood. Veneer produced at Gold Beach will be shipped to Evans' Coos Bay, Ore., plant for processing.

• In a recent address Joseph Wilner, president Wilner Wood Products Co., Norway, Me., said that "the next twenty-five years will see parts of homes, floors, walls, roofs, ceilings, built out of waste wood to such an extent that many small logs, branches and small pulp trees, will never leave the woods as such, but will be ground up right there to supply the demand of industry."

• John Holmberg, one of the original shareholders of Peninsula Plywood Corp., Port Angeles, Wash., and its president for 1950-1952 and a director for twelve years died recently.

• Harry Wall, one of Central Washington's pioneer lumber men and for many years prominent politically in the state, died recently. He was head of the Chelan Lumber & Box Co., Chelan, Wash., for years.

• Three top officials of the Weyerhaeuser Timber Co. from Tacoma, Wash., recently toured Southeastern Alaska, inspecting timber stands and logging and visiting the Ketchikan Pulp Co. They were J. P. Weyerhaeuser, Jr., pres.; Howard W. Morgan, vice pres. and manager of the pulp division; and C. Davis Weyerhaeuser, manager of forestry, timber and lands division. No particular significance is attached to the Alaskan trip, which was made purely for purposes of observation.

• J. W. Bailey, West Virginia Pulp & Paper Co., New York City, has succeeded L. G. Carpenter, McCloud River Lumber Co., Minneapolis, as president of American Forest Products Industries. G. W. E. Nicholson, Union Bag and Paper Corp., New York, and William Swindells, Willamette Valley Lbr. Co., Portland, were named vice-presidents. Paul Koenig, P. H. Glatfelter Co., Spring Grove, Pa., was elected treasurer. Trustees are J. R. Kimberly-Clark Corp., Neenah, Wis.; R. E. Wortham, Jr., Southland Paper Mills, Inc., Lufkin, Tex.; D. S. Denman, Crown Zellerbach Corp., San Francisco; Nicholson; Sydney Ferguson, The Mead Corp., New York; William Hilton, Great Northern Paper Co., Bangor, Me.; Clyde B. Morgan, Rayonier, Inc., New York; E. B. Birmingham, Hammond Lumber Co., San Francisco; Leonard G. Carpenter, Minneapolis. C. A. Gillett was reappointed manager.

• More than 300 firefighters battled a blaze which destroyed upward of $500,000 worth of logs at the Union Lumber Co. in Fort Bragg, Calif. The G. M. Lbr. mill at Covelo, Calif., burned to the ground with loss estimated at $200,000. Sparks from a sawdust incinerator are blamed for the blaze.

• The Jefferson Plywood Co., has been incorporated for $500,000 at Madras, Oregon, by H. F. Forsberg, S. J. Graham, Theodore Nicolai. Nicolai is general manager. The plant will be constructed by the Patterson Construction of Redmond, Ore. The owners hope to get the plant in production in March.

• A public hearing has been scheduled for January 20, 1956, at Portland, Ore., on the petition of the Clatsop county court which requested that lumber industries located in that county be permitted to bid on Oregon and California revested grant land timber in the Columbia river master unit.

• The Fir Door Institute, Tacoma, Wash., has suspended operation. Officers of the Institute decided that the present condition of the fir door industry does not warrant continuing the activities of the organization. The institute was formed in 1937 to promote the sale of Douglas fir doors.

• At press time, news from the labor front showed that a pattern of contract renewals was taking shape and that the industry could look forward to uninterrupted production for some time to come. The program for renewal of union contracts for 1956-57 unveiled in Seattle on Nov. 19 with the AFL signing up with the plywood and door manufacturers, calling for increases of five to fifteen cents per hour averaging 8¾¢ per hour, seems destined to become a general program for the Douglas fir region. About six of the major employer groups had followed the same pattern and negotiations were in progress by other groups for a similar settlement, including the pine region. Weyerhaeuser Timber Co. and the IWA-CIO officials announced agreement on a new pension plan for 8000 woods and mills employees in the northwest, first such program for a major operator. Workers are to vote on acceptance of the plan.

• The Pacific Northwest's newest and most modern sawmill, designed exclusively for the manufacture of 2 x 4 x 8 ft. studs for the building market, has been put in production by Menasha Plywood Corporation at North Bend, Ore.

The stud mill is adjacent to the company's plywood plant on Coos Bay, and was built at a cost of $250,000 for buildings and machinery. Production of 80,000 board feet per shift will utilize logs from the company's stands of Douglas fir on the South Coos river.

LETOURNEAU *ELECTRIC ARCH* handles job too steep for trucks, too long for "tracks"

"We use a LeTourneau Electric Arch because our grades are much too steep for trucks and the trail is too long and rocky for track-type tractors," says William Bestwick, owner and general manager of the Misery Creek Logging Co., Ltd., Nanaimo, British Columbia.

On his show in the Jervis Inlet region, 50 miles north of Vancouver, fir and cedar logs are skidded from a high lead spar down a rocky, 1½ mile trail to a dump on the beach below. The skid trail is rough and winding with grades ranging from 12% to 32%, but the LeTourneau Electric Arch completes a turn every 50 minutes, averaging 7,000 board feet per trip. It handles the spar's entire daily production of 40,000 to 50,000 board feet.

"We've cut our road building and maintenance costs 50% with this LeTourneau machine, and loading costs have been cut by two-thirds. We've eliminated one loading donkey and 24 man hours on every eight-hour shift," he added . . . And with 20 years as a truck logger behind him, Bill Bestwick knows logging costs.

Let powerful ELECTRIC WHEELS cut costs on your show, too

Power for steep grades, axle-deep mud, or rough, rutted trails is *in the wheels* of your Electric Arch. An electric motor and gear reduction inside each rim puts tractive power *under the load* . . . skids big turns up adverse grades with unequalled ease. Down-grade swings are smooth and safe, too, because *electric braking* automatically maintains speed selected. No brake surfaces to wear, no gears to shift. Big powerful friction brakes (for emergency and for parking) set instantly by switch control and engage automatically when engine is stopped.

Bill Bestwick's loggers find the Electric Arch's extreme maneuverability a time saver for quick turn-arounds at the spar tree landing.

Maneuvering on narrow, winding skid trails is quick and easy with *electric powered steering* of front and rear axles. *Extra-wide-base* tires permit plenty of road speed plus better flotation on rain-soaked trails. *Oscillating axle* keeps all wheels driving on rough terrain.

SINCE 1929

R. G. LeTourneau, Inc., Longview, Texas, has built BIG equipment for 26 years under the same corporate structure. In 1953 LeTourneau sold part of its business, retaining plants in Longview and in Vicksburg, Miss. Today LeTourneau creates and produces electrically powered and controlled equipment for logging, land clearing, off-road transportation.

Get the full story on how diesel-electric power can add profits to many phases of your logging operations. See, write, or call your LeTourneau Equipment Distributor today.

NELSON EQUIPMENT CO.
5251 S. E. McLoughlin Blvd., Portland 2, Oregon

TOTEM EQUIPMENT CO.
3706 Airport Way, Seattle 4, Washington

LOGAN MAYHEW LTD.
425 Howe Street, Vancouver, B. C., Canada

LOGGERS & MILL SUPPLY CO.
Highway 299, Arcata, California

LETOURNEAU
LET
EQUIPMENT

More power—longer life—less space. Replacing a 14" belt used previously, a Morse HY-VO Drive —1" pitch and 2" wide—is used to pull a 72" heavy-duty lumber edger having Babbitt bearings. It transmits 100 HP at 1750 RPM. Normal operating time—9 hours per day, 5½ days per week. Result: greatly improved performance.

While lowering operation costs, the Kurth Lumber Company found that with this HY-VO Drive, they were able to use a much less expensive high-RPM motor; save critical space in drive width.

How Morse HY-VO Drive 2" wide replaces 14" belt in edger

When the Kurth Lumber Company, of Jasper, Texas, needed a long-lasting, dependable power transmission drive, they turned to Morse HY-VO Drives. Why? Because they found that HY-VO met all their power transmission needs; gave them more power, longer service life, and required less space.

Why don't you check into HY-VO Drives for your own applications? For a compact drive, with quiet operation even at velocities exceeding a mile a minute, you can't beat it. And HY-VO offers less than one per cent friction loss, 50% longer service life, and a reduction in cost per operating hour by as much as 50%.

Write us, today, for more information on how you can benefit and save by using Morse HY-VO Chain Drives. Find out, too, how well Morse Roller Chain, Sprockets, Couplings, Cable Chain, and Clutches can serve you. MORSE CHAIN COMPANY, INDUSTRIAL SALES DEPT., ITHACA, NEW YORK.

MORSE BW **CHAINS, CLUTCHES, AND COUPLINGS**

logging, land clearing, off-road transportation.

EQUIPMENT

HOMELITE

5-20

CHAIN SAW

It's NEW... It's alive with power

5 HP—20 POUNDS

Never before has there been a chain saw with so much power per pound as the new Homelite Model 5-20. It has 5 big horsepower for faster cutting . . . a light, light 20 pounds for easy operation. What's more, it is the only chain saw that gives you a choice of attachments to do many different cutting chores easier.

The new Homelite Model 5-20 is precision built for quick starting, dependable performance, and low, low maintenance. Cuts in any position . . . it saves both time and money . . . brings bigger profits to woodcutting or clearing operations. Write for complete details or see your Homelite dealer.

See your dealer for details on the Homelite TIME PAYMENT PLAN

Packed with power, the new Homelite Model 5-20 Chain Saw brings down big trees six feet in diameter, cuts through 20" trees in 20 seconds without forcing or jamming. Anyone can operate it . . . no experience necessary.

Interchangeable Blades add versatility to the new Homelite 5-20 Chain Saw. For felling, bucking, limbing or plunge cutting, there's a hard track blade for every requirement. Straight blades available from 14" to 60", bow saws 14" and 18".

Bucking is easier on man and saw when a Homelite 5-20 goes to work. Takes less time than ever before. The 5-20 stands up under the grind on any job . . . job after job.

Underbucking takes less effort and is just as simple as bucking. The 5-20 is easy to handle upside down or in any position . . . and there's no loss of power.

HOMELITE

4812 RIVERDALE AVENUE • PORT CHESTER, NEW YORK

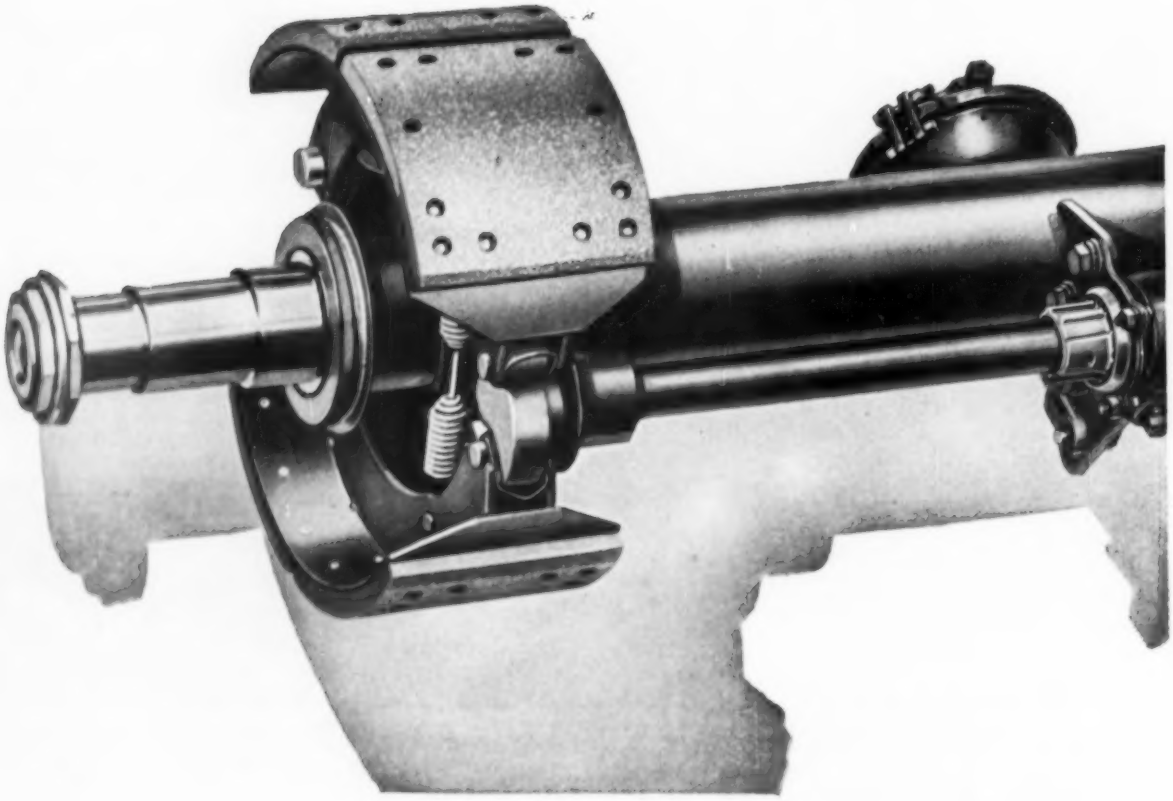
A DIVISION OF TEXTRON AMERICAN INC.

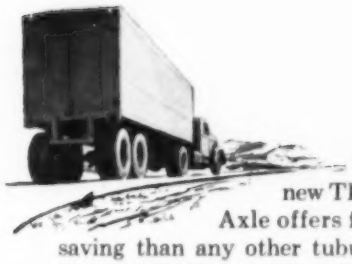
Manufacturers of Carryable Chain Saws • Pumps Generators • Blowers

New lightweight

TDA trailer axle assembly...

INCREASES TRAILER PAYLOAD 128 to 256 lbs.*





This revolutionary new TK-500 Series Trailer Axle offers far greater weight saving than any other tubular trailer axle on the market. Up to 128 pounds of *extra* payload on single axle trailers and up to 256 more pounds on tandem axle trailers.

This amazing weight saving is accomplished *entirely* through improved design and construction. A new improved one-piece brake flange and spider . . . rugged pierced spindles . . . new design lightweight steel hubs . . . ribbed, heat-dissipating drums . . . and new pressed steel brake shoes! All combine to give more payload.

This all-important weight saving is achieved with no loss of strength. Torture testing in the famous "indoor proving ground" and rugged highway tests prove the new lightweight Model TK-500 Series Trailer Axle to be as strong as, or stronger than, any previous trailer axle in its class.

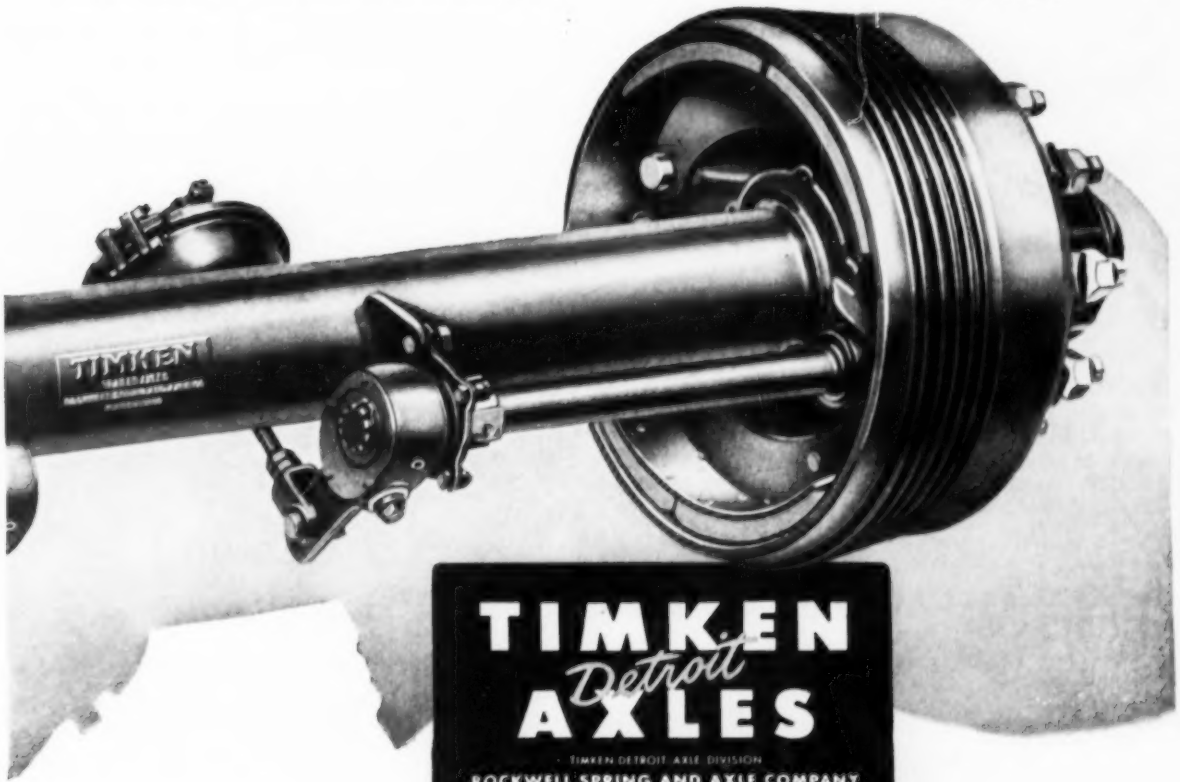
New wheel bearings of greater strength contribute another desirable feature to the well balanced design of this new tubular trailer axle.

Service and inventory problems are materially simplified by the high degree of interchangeability of component parts of all new TK-500 Series and previous TDA trailer axles of the same capacity.

For greater safety on the highway, less maintenance and more payload, *be sure* you specify Timken-Detroit "quality-built" trailer axles on your next trailer purchase. You and your staff members are invited to inspect the world's largest, finest and best equipped trailer axle plant, which is located at Kenton, Ohio.

**For the Same Gross Vehicle Weight*

©1955 RS & A Company



TIMKEN Detroit AXLES

TIMKEN DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN

The Accepted T D A Standard

TRADE MARK REGISTERED

World's Largest Manufacturers of Axles for Trucks, Buses and Trailers

Late Forest Industries News

• Calumet & Hecla, Inc. has announced plans for construction of a sawmill for its Forest Industries Division. The mill will be built and operated by the Goodman Lumber Co., the major operating unit of the division. It will be located near Calumet, Michigan, at the site of the Seneca mine. G. A. Houghton, Sr., Vice president and general manager of the Goodman Lumber Co., Goodman, Wis., stated that completion of construction is scheduled for early 1956. The electrically driven mill, will produce an estimated 5,200,000 board feet annually.

• Georgia-Pacific Plywood Corp., officials are discussing plans for building a pulp mill at Toledo, Ore. The company is also planning a 500 ton daily capacity pulp mill in or near Juneau, Alaska.

• Twelve laminated southern pine arches, each with a clear span measurement of 247 feet were recently manufacturered by the Unit Structures Inc., Magnolia, Ark., for use in the construction of a club building at West Palm Beach, Florida.

• Harbor Plywood Corp., reported net income for the six months ending September 30, of $818,996 as against $122,938 last year. Net earnings per share for the period were 80 cents compared with 12 cents last year.

• Common share earnings of the Pickering Lumber Co., for the six months ending September 30, were 46 cents compared with 20 cents for the same period of 1954. Net income for the period was $881,923 compared with $373.008 last year.

• Climaxing a period of expansion, Tarter, Webster & Johnson and its parent firm, American Forest Products Corp., have begun construction of new $450,000 sales and executive offices on Hyde St. in San Francisco, Calif., slated for completion early in 1956. It is being constructed largely of woods produced by the firm's mills and factories and will feature ponderosa pine, sugar pine, cedar and redwood in both interior and exterior finishes.

• Scott Paper Co., Chester, Pa., is acquiring a 29 percent interest in British Columbia Forest Products., Ltd., Vancouver, BC. Scott will eventually buy a million shares of stock in the British Columbia company. The money will help construct a bleached kraft paper mill on a Vancouver Island site. This new pulp mill will supplement the company's logging, sawmilling, plywood and veener manufacturing, and shingle mill activities.

• Successful bids at a recent U. S. Forest Service timber sale in Montana were,—Rex Brown, Coram; American Timber Co., Kalispel; Tree Farmers Inc., Missoula; Anaconda Copper Mining Co., Lumber Department, Bonner; Marshall Gray, Missoula; Hot Springs Lumber Co., and the Plum Creek Lumber Co., Columbia Falls. Bids totaled $343,265 as compared with the appraised price of $181,933.

• A new $350,000 Australian plywood mill, recently opened at Somerton, Tasmania, will produce 15,000,000 square feet of plywood and fancy veneers from local timber. The timber will come from myrtle, white top, and brown top eucalyptus trees in Tasmania.

• New president of the National Lumber Mfrs. Assoc. is Lawrence L. Kellogg, pres., L. D. Kellogg Lumber Co., Alexandria, Va. He succeeds Judd Greenman, now board chairman.

• Canadian Sumner Iron Works is working with Stadler, Hurter & Co., Montreal consulting engineers, in planning the woodroom facilities of a pulp mill in France and a newsprint mill in Mexico, President Norman Terry reports. The mill in Mexico is Cellulosa de Michoacan and the one in France La Cellulose du Rhone in Tarascon. M. A. Campbell, of the Stadler, Hurter staff is project manager, with Louis Bailey planning the logging setup. The Mexican mill will use Abis fir logs at the mill with a maximum diameter of 55 inches and in 10-foot lengths. They are to be debarked in a Bellingham barker and then conveyed to the small sawmill where highest grade stock is made into lumber. The bulk of the wood, including refuse from the sawmill, will go to Sumner chippers and thence to the newsprint mill.

THE LUMBERMAN'S List of Industry Meetings

January, 1956

B. C. Truck Loggers Association Annual Meeting, Vancouver, B. C., January 11-12-13.

Northwest Hardwood Association, Chamber of Commerce, Portland, Ore., January 21.

February, 1956

Governor's Industrial Safety Conference, Fairmont Hotel, San Francisco, Calif., February 2-3, 1956.

National Wooden Box Association, Shamrock Hotel, Houston, Feb. 6-7.

National Association of Commission Lumber Salesmen, Hotel Leamington, Minneapolis, February 6-7-8.

Sierra-Cascade Logging Conference and Machinery Show, Redding, Calif., February 14-16.

March, 1956

Willamette Valley Logging Conference and Machinery Show, Eugene, Ore., March 1-2-3.

Western Pine Association, Sheraton Palace Hotel, San Francisco, March 8-10.

Intermountain Logging Conference, Spokane, Wash., March 26-27-28.

April, 1956

Forest Products Safety Conference, Klamath Falls, Ore., April 5-7, 1956.

Washington Governor's Industrial Safety Conference, Olympia, April 9-10.

May, 1956

Olympic Logging Conference, annual meeting, Empress Hotel, Victoria, B. C., May 3-4, 1956.

Redwood Region Logging Conference and Machinery Show, Ukiah, Calif., May 25-26.

June, 1956

Forest Products Research Society, Asheville, North Carolina, June 4-7.

November, 1956

Pacific Logging Congress, San Francisco, Calif. (mid-November).

Standard Engineer's Field Report

CASE HISTORY
LUBRICANT *RPM Delo Oils*
FIRM *McGrew Brothers, Medford, Oregon*

Logging trucks work 4 years in mud, dust, and snow without a single bearing failure

FROM LOGGING SHOW TO MILL is a rough 40 miles for McGrew Brothers fleet of B-61 Mack trucks. Four units like one above haul 20-ton payloads through mud, deep dust, or snow, 12 hours a day, five days a week. Mr. E. E. McGrew, partner in the firm, says, "Our trucks take a real beating. But RPM DELO Special Lubricating Oil helps us hold maintenance and replacement costs to a minimum. In the four years we have used this oil, we have never lost a bearing." "RPM DELO" Special is also used in all other equipment—four pickup trucks, two crew wagons, two water wagons, two loaders, and four Caterpillar-built tractors; three D-8's and a D-7. One of the D-8's went 5,000 hours before overhaul and, after inspection, four of original pistons were put back in service. Mr. McGrew designed unique push-arm rig (above), used to unload trucks and stack logs on cold deck.

RPM DELO LUBRICATING OILS

TRADEMARK "RPM DELO" REG. U.S. PAT. OFF.

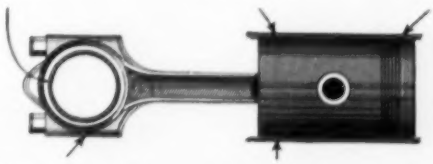
FOR EXPERT HELP on lubrication or fuel problems, call your Standard Fuel and Lubricant Engineer or Representative, or write to 225 Bush Street, San Francisco, California.

Why RPM DELO Oils prolong engine life

Special compounds stop corrosion

Anti-oxidant resists lacquer formation

Detergent keeps parts clean



Inhibitor resists foaming

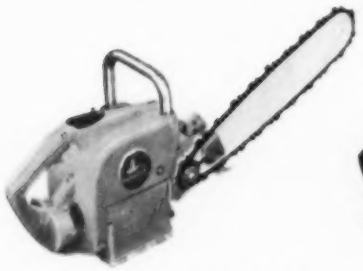
Metal-adhesion qualities keep oil on parts in running or idle engine

STANDARD OIL COMPANY OF CALIFORNIA

McCULLOCH SAWS CUT *FASTEST*

This is the McCulloch
Super 33 in action.
Nothing in its size
or for its price can
match its cutting speed!

McCULLOCH OFFERS COMPLETEST CHOICE OF SIZE OR POWER, WEIGHT OR PRICE

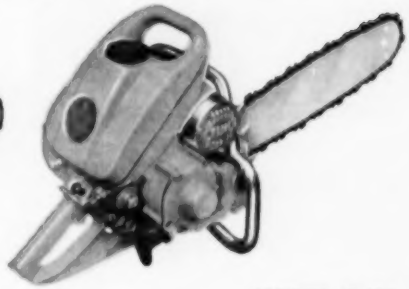


MODEL 33

Lightest weight, 20 pounds complete; lowest price, a real buy at $195 up.

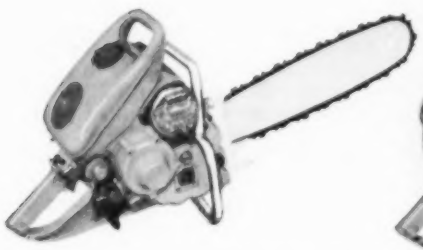
SUPER 33

Most powerful of all saws in its weight class, only 22 pounds. $237.50 up.



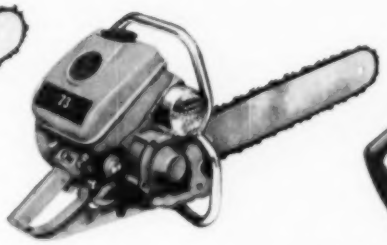
MODEL 4-30

This is a powerful, well-balanced, lightweight saw, priced at only $315 up.



MODEL 47

A dependable and rugged performer weighing only 30 pounds, $279.50 up.

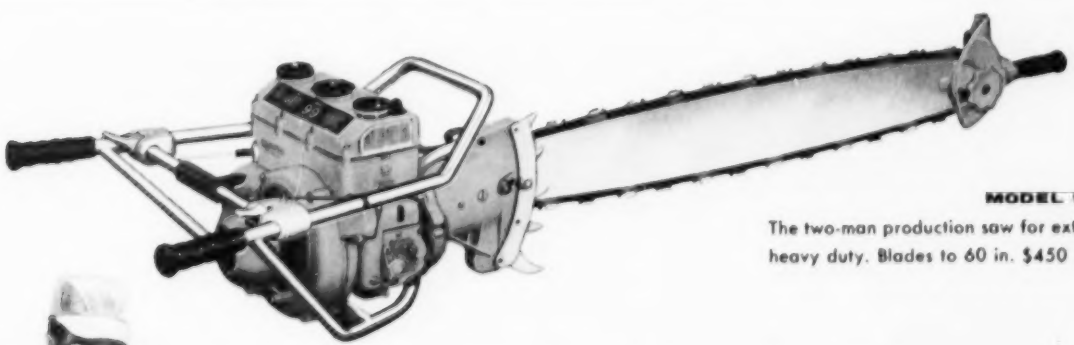


MODEL 73

Fastest-cutting 1-man saw; top professional favorite; weighs 31 lb. $365 up.

PLUNGE BOW MODELS

Cut with the tip, save labor in pulp logging. Bow saws in all models, $240 up.



MODEL 99

The two-man production saw for extra-heavy duty. Blades to 60 in. $450 up.

We invite YOU to test McCulloch cutting speed

Use a McCulloch demonstrator saw at your nearby dealer's to make a cut through a log of the size and type you'd normally be cutting. Check how long the cut takes.

Then make a similar cut through the same size and type of log with any other make of saw in the same range of weight or price, and check the time.

Pound for pound, and dollar for dollar, McCulloch saws outperform all other saws. They are your best dollar value. Write for free literature to McCulloch Motors Corporation, Los Angeles 45, California.

McCULLOCH

World's largest chain saw builder

McCULLOCH

S-5904

The Lumberman presents as Tall Timber.

John E. Liersch

JOHN LIERSCH
Powell River Company, Ltd.,
Vancouver, B. C.

THE MAN WHO directs the far-flung forest operations of Powell River Co., Ltd., one of Brititsh Columbia's biggest users of wood, is a 6 foot-plus ex-forestry professor and logger who was born in Winnipeg, in the heart of Canada's treeless prairies.

John E. Liersch, however, didn't remain long enough in Manitoba to let that province and its wheat economy influence his life and career. His family moved to the Pacific coast when he was a child. Vancouver has been his home most of the years since then, with occasional time off for professional forays into the big timber of the Queen Charlotte Islands, the Northwest states and many interior and coastal sections of British Columbia's mainland.

John has gathered much technical, academic and industrial experience since the early 1920's when he spent his summer vacations from school engaged in surveys for the Dominion and Provincial Forest Services. His ambition was set on a forestry career when a boy. Once having decided on his course, there were few diversions or distractions, and his progress first as an educator and later in private industry has been consistent.

At University of British Columbia, Liersch won his degree as a bachelor of forest engineering and the following year he was a full-time forester with the Forest Service, starting on the trail followed by many other British Columbians who later became industry executives. For two years he was in charge of forest surveys, mostly in the interior woods of the province. In the Fall of 1929 he won a fellowship that took him to the University of Washington where he took his master's degree.

When he succeeded in winning a Charles Lathrop Pack scholarship that enabled him to concentrate his study on selective logging he was more than ever convinced that he was in forestry to stay. The following year and a half with Crown Zellerbach Corp. in Washington and Oregon gave him a valued background and his first insight into some industry problems. Then he went to work for Crown as a logging engineer and spent three years in the Youngs River and Clatskanie River area near Astoria.

Liersch was ready to return to his home province by 1935, and spent a year with the old Malahat Logging Co., at Port Renfrew. This gave him his first practical experience in B.C. coast logging. He followed this up with five years of contract logging on the Queen Charlottes for J. R. Morgan —years that paid off a little later when Canada was looking for someone to speed up production of aircraft spruce to meet wartime demand.

But before that moment arrived, Liersch had been chose for another role, as head of the forestry department of the University of British Columbia. He had barely got his feet under the desk, when World War II broke out. The Canadian government picked Bob Filberg, now president of Canadian Western Lumber Co. (Crown Zellerbach Canada Ltd.), the late J. H. McDonald, of B.C. Manufacturing Co. (now a Powell River Co. subsidiary) and the late Percy Sills, Victoria lumberman, to whip into shape, almost overnight, a hard-hitting organization to mobilize production of spruce to be rushed overseas for the building of the Royal Air Force's famous Mosquito bombing planes.

Aero Timber Products, a government corporation, was hastily organized with the trio named as top officers. John Liersch marshalled the company's field forces and exchanged his professor's robe for calk boots, snag pants and mackinaw. He was on his way to some of the toughest logging country on earth.

Aero Timber Products acquired the holdings of the late A. P. Allison, and arranged for J. P. Morgan and T. A. Kelley, experienced Queen Charlotte logging contractors to combine their facilities with those of Aero, which established several camps of its own. At the peak of activity, some 700 loggers were getting out spruce on the islands.

The war over, Liersch resumed his university duties, but had been there less than two years before Powell River Co. tapped him for a post in its expanding forestry department. President Harold S. Foley, now chairman of the board, had been one of the first in British Columbia to recognize the importance of salvage logging. He was instrumental in launching the now historic "Ladysmith Experiment" to demonstrate the economics of this type of operation. Powell River Co.'s partners in this were the provincial government and Comox Logging & Railway Co., headed by Filberg, Liersch's wartime boss.

Liersch's appointment was in line with the company's thinking—the need of giving more emphasis to the growing and management of the raw material on which Powell River Co's over-all operation was based. In quick succession during the subsequent years Liersch became assitsant general manager of the timber department, assistant vice president and finally vice president in charge of forest operations.

During his period of office Powell River Co. has developed several interesting and important innovations, of which the specially-designed self-dumping log carriers are a recent illustration. The company's wood usage due to expansion of existing facilities and acquisition of new ones has risen in the past five years from 160 million board feet a year to 350 million board feet. And 10 percent of the total log usage at the plant is material that used to be classified as unusable.

During his career in the woods John Liersch has seen at close range the revolutionary processes that have hastened the transition of British Columbia's forest economy from lumber-or-pulp to lumber-and-pulp. His present position is symbolic of the basic trend towards maximum utilization of raw material and industrial integration that are bringing about a stability such as never before existed in the forest industries of the west coast province.

A member of the Canadian Institute of Forestry and the Society of American Foresters, Liersch is currently vice president of the Association of Professional Engineers of B.C. and first vice president of Western Forestry and Conservation Association.

Our Cover Picture

Skagit SJ-4-RT mobile unit yarding and loading logs at Walt Van de Grift operation near Concrete, Wash. Live boom is lowered as big log is yarded into a roadside hot deck.

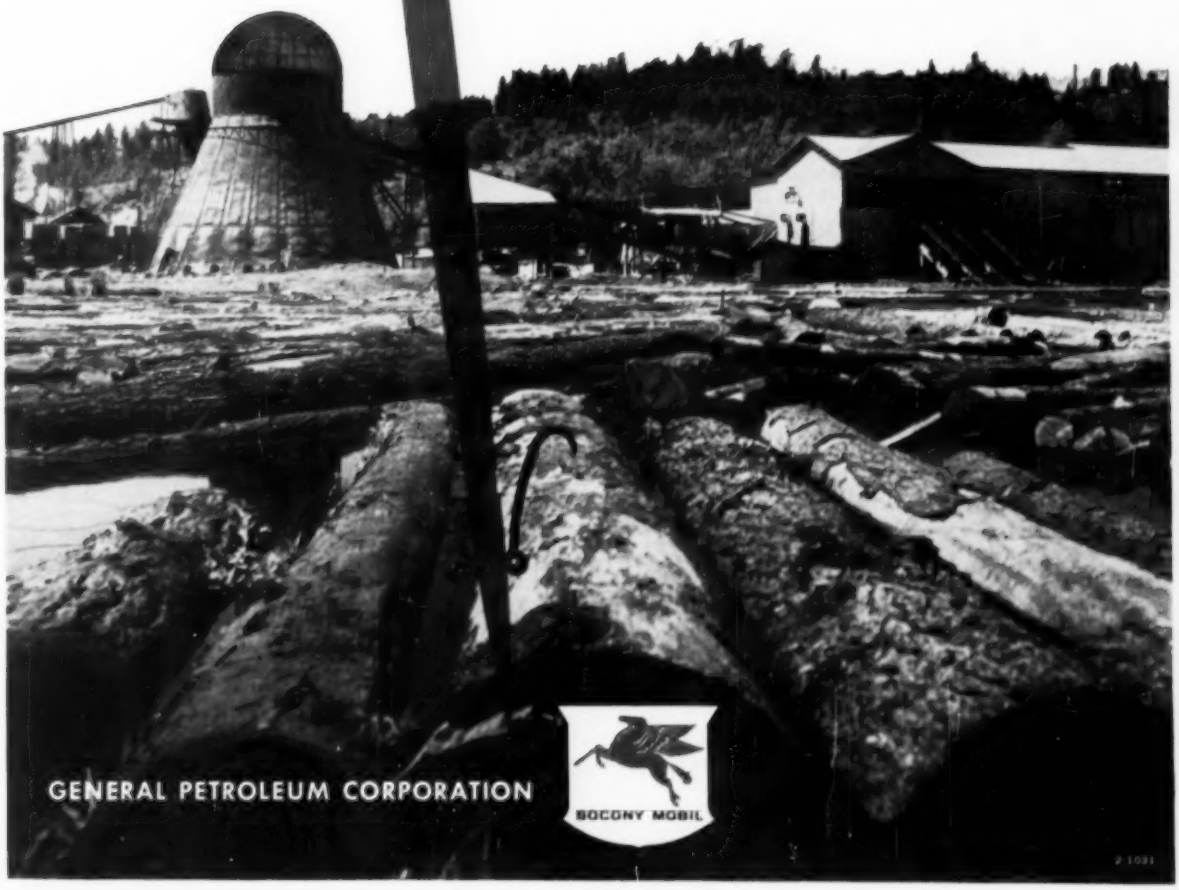
Leo and Pat Rickard

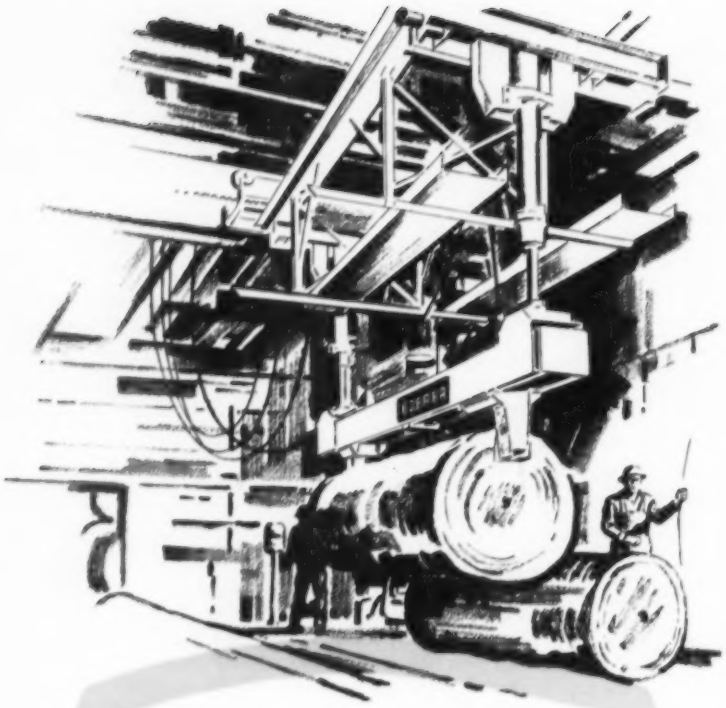
5 years... without a single failure due to lubrication!

That's the impressive maintenance record set by Rickini Lumber Co. of Cottage Grove, Ore., one of the Northwest's newer air operated sawmills.

All machinery at the mill, including air compressors, cylinders, saws and trimmers is lubricated automatically by means of a Manzel force feed lubricator console installed by General Petroleum's lube engineers five years ago.

Gargoyle oils and greases, leaders in industrial maintenance for almost 90 years, have been selected by Leo and Pat Rickard to protect their equipment against costly down-time. Why settle for anything less at your plant? Call your nearest G.P. office today for the tops in products and service.





Chucks a Lathe in 18 Seconds!

The EDERER overhead lathe charger is "job-engineered" to pick up a peeler—pre-center it to lathe chucks—and move it forward to exact chucking position. The average chucking time, in an operation which was clocked for five hours, was 18 seconds after peeler knife was retracted!

In the same five-hour period, the charger handled 75 102-inch-long peelers, average diameter 36 inches [minimum 22, maximum 70 inches].

During the entire cycle, the operator had returned the charger, picked up the next peeler, was at the "ready" position before the lathe had finished peeling the previously chucked block.

This entire operation is hydraulic from one set of controls, located for the operator's convenience.

For handling peelers of any size, an EDERER lathe charger can be "job-engineered" to exact requirements.

Write for full information about EDERER overhead, floor-mounted and core lathe chargers.

282V35

EDERER ENGINEERING COMPANY
2933 First Avenue South
Seattle 4, Washington

EXPORT DIVISION:
301 Clay Street, San Francisco 11, California

EDERER

PLYWOOD EQUIPMENT

OVER 53 YEARS "JOB-ENGINEERING" CRANES AND HEAVY EQUIPMENT

Report From Japan

By THE LUMBERMAN'S Correspondent

• Company policy outlined: President Kobasyashi of Alaska Lumber & Pulp Co. reports to the association of lumber dealers in Nagoya that the company was looked upon with a very good feeling by Alaskan interests in general. Manpower is in short supply as compared with the natural resource. A fifty-year lease by the U. S. Forest Service will be granted soon. With a good hemlock and spruce stock of 4,800,000,000 ft. BM the forest is comparable to the total stock of 7,200,000,000 BM of South Sakhalin which Japan lost, as a result of the war, to Soviet Russia.

Designing of the pulp plant will be finished within the coming year after which construction will be started.

Lumber products sawed at the Wrangell mill are being well sold due to house building boom in America.

• Alaska Lumber & Pulp Co., Ltd., has named its XX spruce lumber shipped from its Wrangell, Alaska, sawmill to Japan "Sitka-Hinoki." Hinoki stands for a Japanese cypress, highly esteemed for house building in Japan.

• Japanese Plywood Exports: Although a list of export check prices were formulated and put into force last July, it was disregarded by many plywood exporters and manufacturers, since the proposed regulation contained a rule that in exceptional cases plywood could be exported at less than the stated prices, up to the end of August. Apparently considerable plywood was shipped under this rule during the transient period. Those who adhered to the provisions of the control measure have been placed in a disadvantageous situation.

• At a recent meeting of the directors of the association a quota system for members was discussed. The quota system will consist of two categories: (1) Actual Merit quota. Actual quantity dealt with by each member from January 1953 to June 1955 inclusive will be taken as the basis for future shipments. (2) Special quota. 20 percent of total. Reserved quantity for special cases.

• Control of shipments of non-members was discussed. It was agreed that if such firms should make shipments in September at prices well under the check price, the association will file a recommendation with MITI asking that further shipments at cut prices be halted.

It is estimated that export of plywood by "outsiders" was 26 percent of the total in 1923 but fell to 16 percent in 1954.

• More recently, conferences have been held by Japanese plywood and lumber manufacturers and exporters at which an effort has been made to stabilize the markets. Quota systems and a raw lumber alloction system were among the plans discussed.

Announcing:

The B-11

– a great new Norton resinoid bond

More uniform, better balanced B-11 wheels bring new
"TOUCH of GOLD" advantages to your saw sharpening operations

Joining the list of famous Norton bonds that have made grinding wheel history, the new B-11 resinoid offers important new performance benefits to lumber mill saw sharpening applications. Here's why: New processing developments have greatly improved the uniformity of structure and therefore the balance of B-11 wheels. As a result, they grind cooler and faster, with far less vibration and bounce. This more efficient "Touch of Gold" grinding action protects high speed steels from heat damage, gives you longer lasting saws and reduces sharpening costs to their lowest.

In addition, you get closest possible duplication with B-11 wheels. Not only are the hardness increments evenly spaced throughout the entire grade scale but to make it even easier for you to choose exactly the right wheel for every job, B-11 wheels can be supplied in half-grade increments.

See your Norton Distributor

for details on the new B-11 resinoid bonded wheels. Or write to us direct. And remember, only Norton offers you such long experience in both grinding machines and wheels to help you produce more at lower cost. NORTON COMPANY, Worcester 6, Mass. Distributors in all industrial areas, listed under "Grinding Wheels" in your phone book, yellow pages. *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Massachusetts.

W-1668

NORTON
ABRASIVES

Making better products... to make your products better

NORTON COMPANY: Abrasives • Grinding Wheels • Grinding Machines • Refractories
BEHR-MANNING DIVISION: Coated Abrasives • Sharpening Stones • Pressure Sensitive Tapes

GM DIESEL
CASE HISTORY NO. II A6-11

• • • • • •

USER: Lowery Bros. Lumber Co., Spurger, Texas

• • • • • •

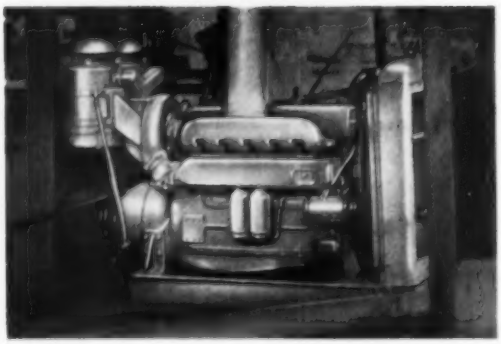
INSTALLATION: GM "6-110" Diesel engine powering Cunningham mill, saw, edger and conveyors.

• • • • • •

PERFORMANCE: Producing 25,000 bd. ft. of 1" lumber per day. Co-owner Lester Lowery says, "GM Diesel power actually 'put us in business'—downtime is a thing of the past—we cut faster, cleaner and save money, too."

PRODUCTION TRIPLED

since they switched to
General Motors Diesel



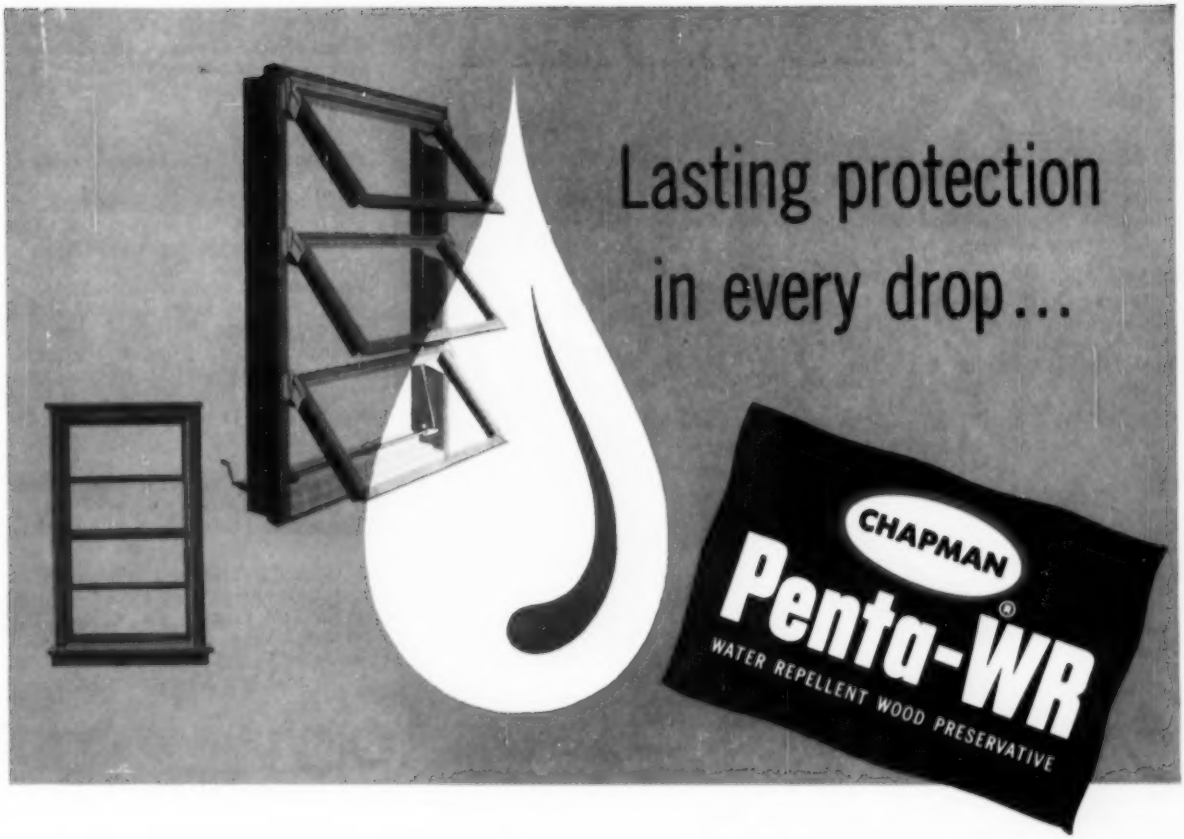
This Texas mill was turning out 8,000 bd. ft. of lumber per day with a gasoline engine. The owners put a GM "6-71" to work replacing the gasoline engine in 1952, and boosted production to approximately 16,000 bd. ft. per day. Then, wanting still more power, they switched the "6-71" engine to a portable mill (designed by Lester Lowery) in 1953 and installed a GM "6-110" engine. Production then went to 25,000 bd. ft. per day.

"Higher production at lower cost!" That's the report you'll hear from thousands of operators who use General Motors Diesel power—particularly owners who have stepped up their power with the new "110" engine in sawmills and other equipment. This 300-H.P. GM Diesel operates on the same 2-cycle principle as the famous "71." With every downstroke of every piston a power stroke, it delivers a smooth, steady flow of power that's quick to respond to varying loads—cuts faster, cleaner and more economically.

Operators tell us their GM Diesels run for years without overhaul, but when parts or service are needed they're quickly available at low cost. For full details on GM Diesel power in new equipment—or in your present units—call in your GM Diesel distributor or write:

DETROIT DIESEL ENGINE DIVISION
General Motors • Detroit 28, Michigan
America's Largest Builder of Diesel Engines
Single Engines . . . 30 to 300 H. P. Multiple Units . . . Up to 893 H. P.

GM DIESEL POWER



■ There's positive, long-lasting protection for millwork in every drop of Chapman Penta-WR. This clean, paintable, water repellent preservative is carefully formulated for maximum effectiveness. Production is quality-controlled in the modern Chapman laboratory and plant. Users of Chapman Penta-WR may also benefit by these additional Chapman services:

1. You can buy for maximum economy—Fast delivery in tank cars, tank transports or drums (Carloads or LCL) from warehouse stocks throughout the U.S. Also available in Canada.

2. Your choice of concentrates or ready-to-use solution—Chapman Penta-WR is produced in concentrates of 1-to-5 and 1-to-3 and a ready-to-use solution.

3. You can obtain free engineering assistance—On request, Chapman Chemical Company will provide free engineering designs and specifications for setting up your own millwork treating system.

CHAPMAN® **PENTA-WR**

Pentachlorophenol • Water Repellent Preservative • Meets Federal Specifications TT-W-572 and Military Specifications

Write for information and prices

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Memphis 1, Tennessee
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LIC. NO. WATER REPELLENT PRESERVATIVE APPROVED NATL. WOODWORK MFRS. ASSN.

From WOODS AND MILLS

Harry Hubbard, formerly with the Idaho Highway Department recently joined the staff of the **Northwest Timber Co.**, Gibbs, Ida. He will have charge of the operations and maintenance of logging equipment.

Walter Crawford has been named logging superintendent of the **Simplot** lumber operations at Boise. He has been logging a Crouch, Ida.

H. W. Hawkins is now manager of the **J. Herbert Bate Co.'s** operations at Wallowa, Ore. He was formerly with the **Lorenz Lumber Co.**, Spaulding, Idaho.

J. D. Kincaid of Tillamook, Ore., has moved to Longview, Wash., where he will have charge of the **Aberdeen Plywood Corp's.**, logging operations in that area.

The Hoquiam Plywood Co., Inc., is now operating under its new ownership. There are 110 men in the plant. The mill has a new Coe 16 section dryer, 2 glue lines, a hot press. The mill is producing 2,500,000 square feet of plywood per month. Harry Moran is general manager.

The Paul B. Hult Lumber Co., Dillard, Ore., has installed chipping equipment. It is expected that three or four carloads of chips will be produced daily for shipment to the new **Western Kraft** paper mill at Albany, Ore.

Ukiah Lumber Co., which has a sawmill near Reith, Ore., has acquired a mill site east of Waitsburg, Wash., on which it plans to erect a new mill.

Fitzer Bros., have established a modern small sawmill near Buckley, Wash. The mill has a daily capacity of about 30,000 feet.

Greer Lumber Co., Inc., has been incorporated at Greer, Idaho for $100,000 by **George King** of Orofino, **John Rauch** of Tacoma, and **Nancy Hagen** of Seattle.

Owners of the **VanVleet Lumber Co.**, whose large sawmill at Ranier, Oregon, burned last summer have announced the mill will be rebuilt.

Malcolm-Parks Lumber Co., plans to operate a mill on the site of the former Eatonville Lumber Co., Eatonville, Wash. **Don Murphy,** Eatonville logger, has acquired an interest in the Malcolm-Parks firm.

Idaho Piling & Pole Company, plans to build a stud mill at Orofino, Idaho. **M. W. Stanton** of the company says the firm purchased the Idaho Piling & Pole Co., at Ahashka, Ida., and the Reliance Shingle Co. at Dent. He says the firm has a Trop pole peeler, a Sumner Shingle machine, two tractors, a jammer and two logging trucks.

A firm known as the **Shasta Pre-Fab Company** has built a plant at Mt. Shasta, Calif., to remanufacture plywood core logs. The core logs will be cut into short length stock which will be tongued and grooved.

B. & L. Logging Company has been incorporated at Idanha, Ore., by **R. C. Haseman, LaVelle Haseman and A. F. Aymong.**

The United States Plywood Corp., has started construction of a green veneer plant at Gold Beach, Ore. This will be a modern plant and will use about 45,000 feet of logs per shift.

The Klickitat Pine Box Corp's new sawmill at Goldendale, Wash., has been rebuilt.

Frank A. Terbush, Coos Bay, Ore., has been appointed field representative of **Western Forest Industries Assoc.**, Portland, Ore. He was formerly with the Bureau of Land Management.

Northern California Plywood Co., Crescent City, Calif., is building a modern office building at its plant.

Ed Gilden, forestry extension agent in Douglas Co., Ore., has been appointed extension forester for the **California Extension Service.** His appointment is effective Jan. 1, 1956. His headquarters will be in Berkeley.

The **Chico Wood Product Company's** new mill at Stonyford, Calif., has started operations.

Fortson Mill Co., Darrington, Wash., has completed installation of barking and chipping equipment. Some new equipment is also being placed in the sawmill.

Mt. Whitney Lumber Co., Johnsondale, Calif., has announced it will build a new sawmill about 20 miles east of Porterville, Calif., in the Tule River Indian Reservation, if the government will grant a twenty year extension to a timber contract held by the company.

The Blagen Lumber Co., has established offices at Toyon, Calif. The post office is San Andreas. The Blagen mill is at White Pines.

North Dakota has at least one logging operation. **The Fesenmaier Logging Co.**, with headquarters in Minneapolis, expects to log three quarters of a million feet of logs this year. The operations are along the Sheyenne River in the vicinity of Anselm and Kindred in the southeastern corner of the state. The timber is mostly basswood. Fesenmaier pays farmers an average of about $18 per M for the stumpage and does his own logging with power saws and tractors and trucks. Trees twelve inches and larger are removed.

The **Phillips** portable sawmill west of Yoncalla, Oregon, burned recently. The mill had been idle for a month.

Three California sawmills burned in early November. They were the plants of the GM Lumber Co., Covelo, the Navarro River Lumber Co.'s mill south of Fort Bragg; and the L. B. Miller mill near Navarro.

The Parkside Lumber Company's sawmill near North Vancouver, B. C., was recently swept by fire. Loss was estimated at $150,000.

Keep Booms Clear!

• Accidents occur frequently in which a boom on a crane contacts an overhead power line.

The following precautions should be observed:

- Inspect route to be traveled and area in which equipment will work. Uneven ground can quickly alter conditions. Never operate equipment beneath power lines without adequate clearances. **A minimum of ten feet clearance** should be maintained at all times.
- Use as short a boom as possible.
- Never move equipment in vicinity of electric lines with boom raised.
- Don't attempt to raise or move high voltage lines. The power company will do it.
- If there is possibility, when moving equipment, that the boom may bounce and come within ten feet of high voltage lines, tie boom down.
- Be sure that the ground crew—and don't overlook the new men on the job—are warned of dangers. Men handling guide lines, slings or cables, or touching the machine itself are in most hazardous position.

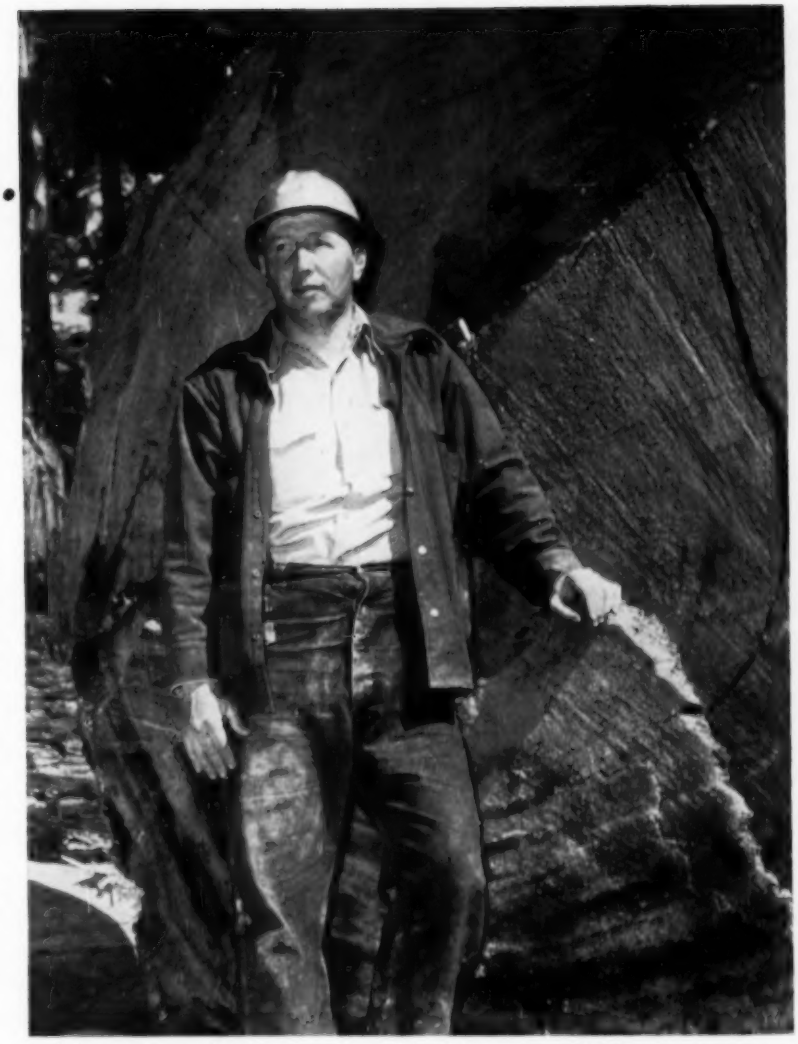
Commercial warning devices are available which work by induction from a power line, ringing a warning bell in the cab when the boom or cable approach within a predetermined distance of a power line.

Re-route or raise power lines in dangerous working areas.

John Yingst...

FROM THE MINES TO THE WOODS

By Stewart Holbrook



A former Pennsylvania iron miner, John Yingst personifies the new generation of logging bosses. He headed West in 1945, and is now the logging boss of the Simpson Redwood Company in Del Norte County, California.

JOHN YINGST, the young, energetic logging boss of the Simpson Redwood Company in Del Norte County, Calif., was born in Lebanon, Pa., and what might be termed his first gainful occupation was at Cornwall Banks, as the nearby iron mines of Bethlehem Steel used to be called.

Having meanwhile entered Penn State for its forestry course, John Yingst came west in 1945 on the strength of some sort of a job at Shelton, Wash., promised him by George L. Drake, a distinguished alumnus of the same college who by then was an official of the Simpson Logging Company.

Though young Yingst found his secondary language of Pennsylvania Dutch of little use in the Douglas fir country, he turned out to be a natural. After doing salvage logging for Simpson's then new fibre board plant on Puget Sound, he was put in charge of tree-thinning experiments. For the next half-dozen years his time was about equally divided between forestry and logging as a sidepush under Bud Puhn.

A little later Simpson expanded into California to operate a logging camp, sawmill and veneer plant on the Lower Klamath River. Yingst went there as assistant logging manager; and a year later took over the top woods job, a position he has held since 1952.

Simpson's Redwood logging division operates with approximately one hundred men, working three sides, mostly with cats, and feeds from 70 to 75 million feet a year to the sawmill and veneer plant. The logs run about half fir, half redwood. A majority of the loggers live in Crescent City, as does Yingst, and are brought by bus the 21 miles to Klamath on the Redwood Highway.

John Yingst's headquarters could pass for the office of either a forester or a logging boss, judging from the maps, photographs, literature, conifer seeds and other artifacts seen there by a casual visitor. The two interests appear equally important to him.

Not yet forty years old in 1955, his enthusiasm for forestry practices as applied to the logging woods is lively enough to convert the most depraved cut-out-and-get-out operator. He struck this reporter as personifying the new generation of logging bosses who, because of long training, are equal no less to cutting timber than to the growing of trees.

Bethlehem Purple Strand Wire Rope has the dependability demanded by the men who log today and plan for tomorrow. It is made of Improved Plow Steel, in all constructions and sizes needed for rigging modern timber handling equipment. Talk to your distributor about Purple Strand. He's ready to give you fast delivery of the type and size that's best for your job.

BETHLEHEM PACIFIC COAST STEEL CORPORATION

Another FIRST

DIAGON PLANE

PATENTED

PREVENTS . . . . .

OZAN LUMBER COMPANY
MANUFACTURERS
YELLOW PINE LUMBER

PRESCOTT, ARKANSAS

October 25, 1955

S. A. Woods Machine Company
27 Damrell St.
Boston 27, Mass.

Gentlemen:

After six months of continuous operation in our planing mill at Prescott, Arkansas, milling various grades and patterns of Arkansas Soft Pine on the new WOODS A-480M Angular Head Matcher, the performance of this machine has been most satisfactory.

Just a few of the accomplishments of this machine have been - elimination of sniped ends - smoother finish around knots and cross grain - less power consumption in feeding of stock - the possibility of improving the lower grades and upping some. It is our belief that less power is consumed in planing because of the angular or shearing cut on the cylinders.

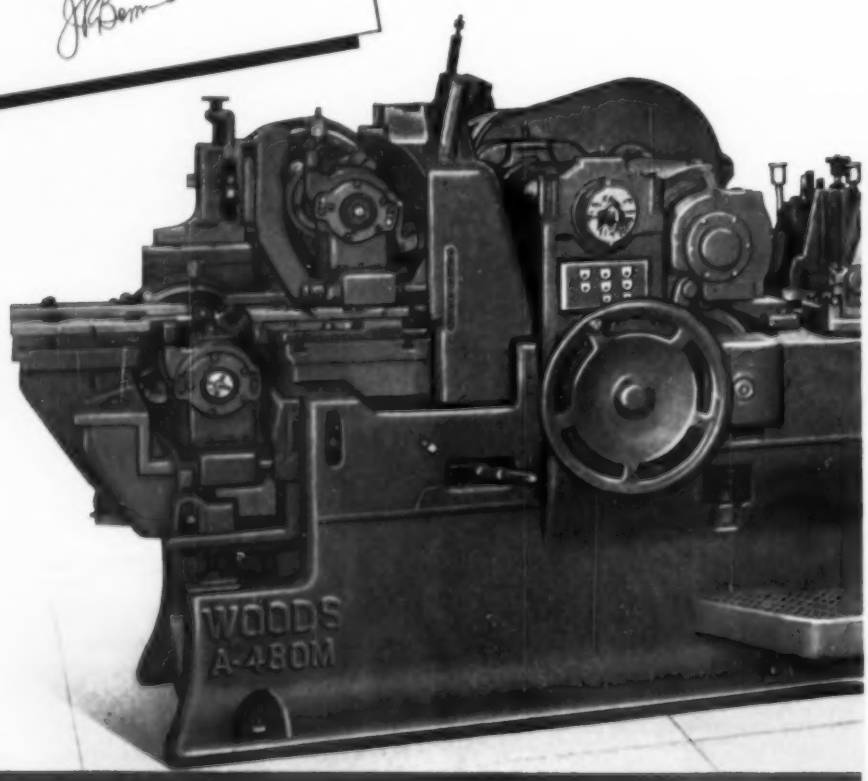
Less lead is required in the guide as angle cutterhead serves to hold stock against the guide fence. This should tend to reduce friction as well as wear on the feed rolls. Also because of the angle of the bed plates, stock 5" and wider is continuously supported before and after the cutting on the bottom head.

We think this is a very fine machine and the new principles applied are of real value in the advanced design.

Yours very truly,

OZAN LUMBER COMPANY

JRBemis:ve



S. A. WOODS MACHINE CO.
27 DAMRELL STREET
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by WOODS®

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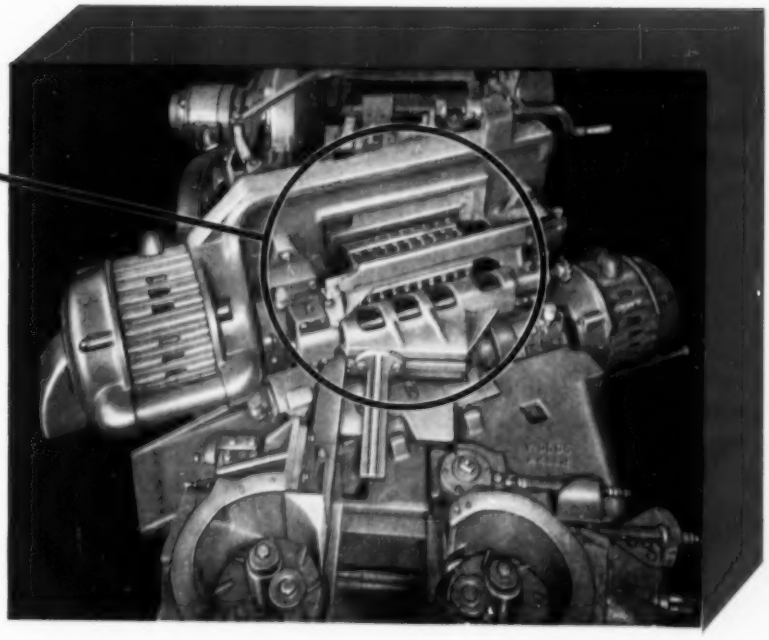
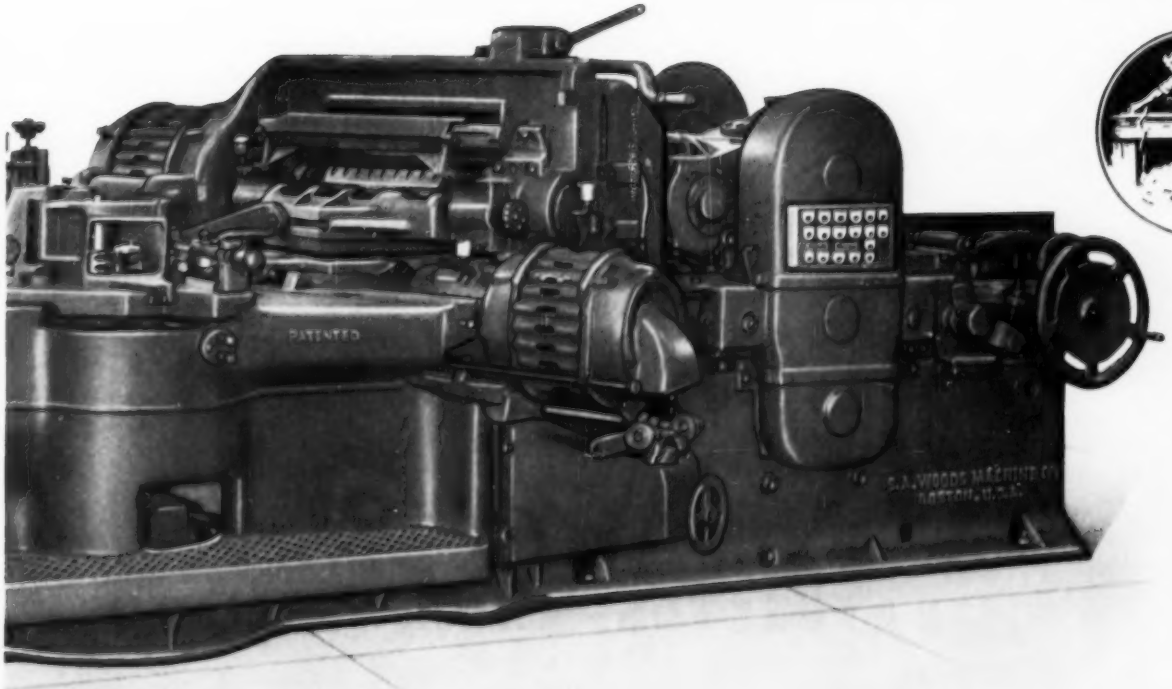


- ✓ **END-SNIPING**
- ✓ **TORN GRAIN**
- ✓ **LOOSENING of KNOTS**



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BOSTON 27, MASS.

HOW TO BUY RUBBER TRANSMISSION BELT

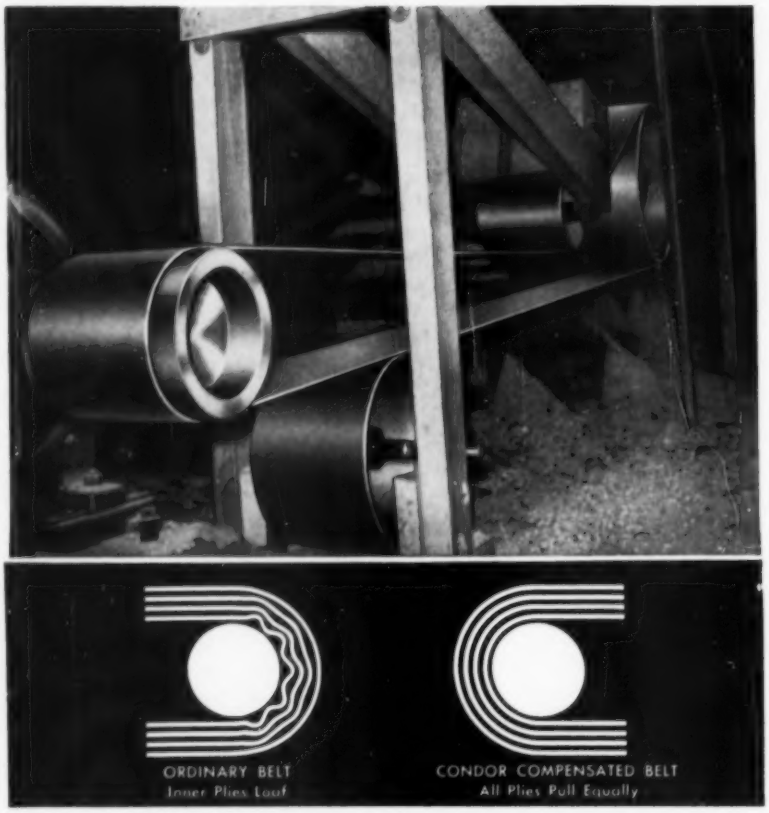
For MORE POWER AND LONGER BELT LIFE

"More Use per Dollar"

Look for a belt engineered to give uniform ply tension and eliminate major causes of premature belt failure.

Unequal distribution of tension among the plies of a rubber transmission belt is the cause of most belt weaknesses and eventual failure. With ordinary belts, the inner plies "loaf", become loosely crumpled when rounding a pulley. Outer plies become overworked . . . pull more than their share of the load. The thicker the belt the greater the tension of these outer plies. It is here where belt failures begin . . . plies separate, outside plies rupture—especially at the fasteners. Where ply stresses are equalized *during manufacture*, every ply pulls its share of the rated horse-power of the belt . . . you get more power, more belt life, longer trouble-free service.

Specify by name the only transmission belt with exclusive equalized ply stresses . . . specify R/M's Condor Compensated Belt.



CONDOR COMPENSATED BELT

An exclusive Manhattan method of equalizing transmission belt ply stresses was developed by R/M engineers especially to eliminate ply separation, rupture and fastener troubles. When Condor Compensated Belt rounds the pulley, every ply is under *uniform* tension . . . every ply pulls its full share of the load. On many drives, Condor Compensated Belt holds fasteners up to 4 times longer than ordinary belt. A selection of driving surfaces is available to meet various machine tension requirements . . . from low-tension to a required degree of slip.

Let an R/M representative show you how the advantages of Condor Compensated Belt can mean more power and longer trouble-free belt life . . . "More Use per Dollar" on your power transmission drives. For endless belts, ask about Condor Whipcord Belts with endless, stretchless cord strength members.

RM 516 F & L

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
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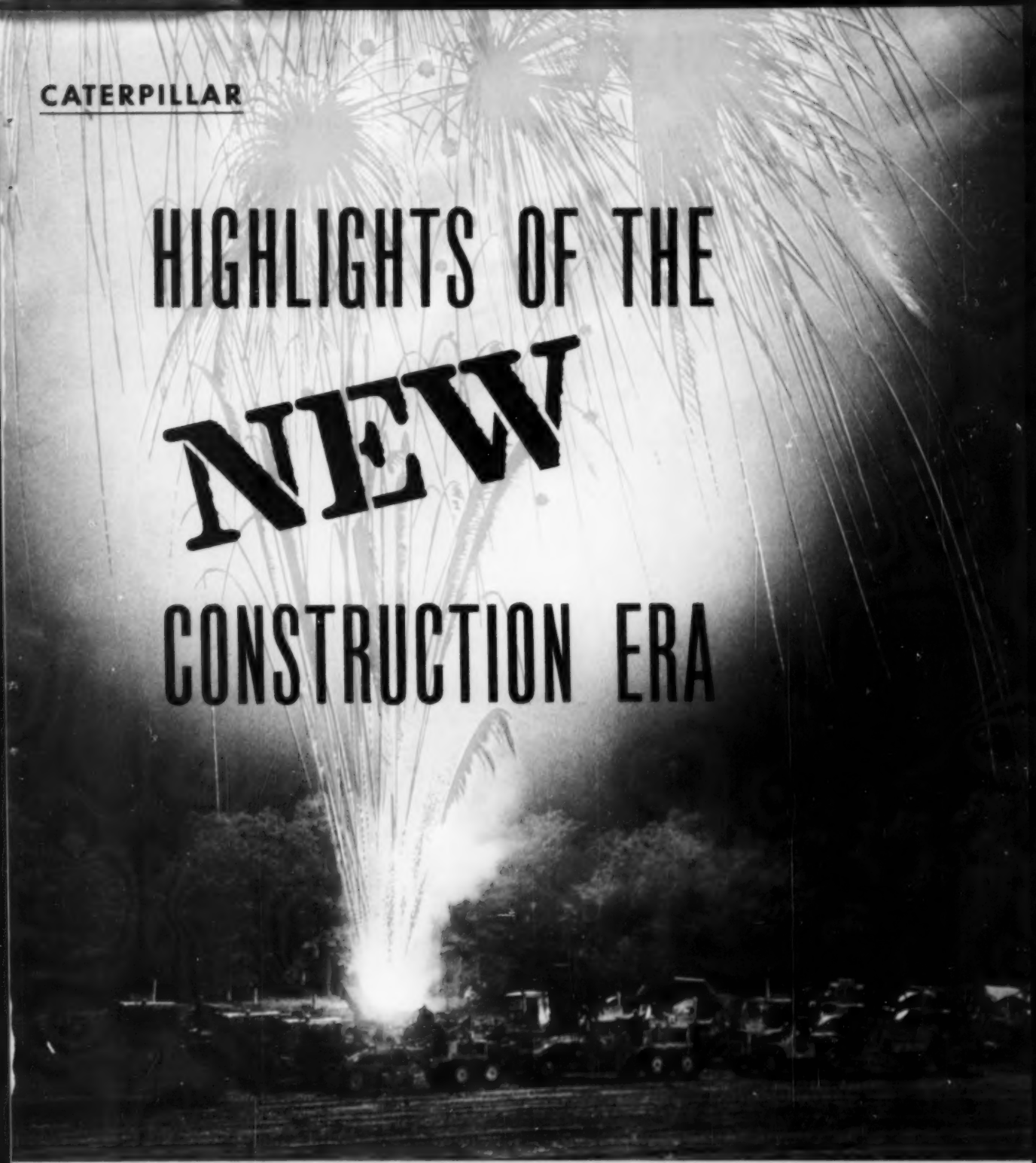
CATERPILLAR

HIGHLIGHTS OF THE NEW CONSTRUCTION ERA



Never before in history has the equipment industry faced such a tremendous challenge as today. We are entering what might well be called the "construction era." Right now construction is the greatest single factor in our industrial economy, employing 12% of our total labor force. And construction can never move forward by itself. Its progress is dependent upon increased production in mines and forests, cement mills and steel plants. Caterpillar Tractor Co. is matching these new opportunities with an array of new products that will increase production, cut maintenance costs, work longer and more profitably than any other equipment on the market. These Caterpillar-built products are the result of continuing research in the laboratory and in the field. They are forceful evidence of Caterpillar Leadership in Action. See them on the following pages.

NEW in track-type tractors!

The new D9

This new giant is a bear for work. Choice of torque converter or exclusive oil clutch drive. First track-type tractor with Turbocharger. Completely new 286 HP engine. "Live-shaft" drive for rear-mounted equipment. Many other important features.

The new D8

With torque converter (Series D) or direct drive (Series E). Completely new 191 HP engine. "Live-shaft" drive for rear-mounted equipment independent of flywheel clutch. New easy controls. Many other improvements. Shown with new Cat No. 463 LOWBOWL Scraper.

The new D7 (Series C)

New 128 HP engine. Drawbar pull 28,700 lb. maximum. Exclusive oil clutch. Finger-tip steering. New starting engine for easier operation. Track shoes hardened by "*water quench*" process (also on D8 and D9). Many other important advances.

LEADERSHIP IN ACTION

No. 955 — 1 1/2-yard capacity

Balanced for bigger production at lower cost. Major features: 40-degree bucket tip-back at ground level, new oil-type clutch, convenient lift and dump levers, modern hydraulic system, high reach, "designed in" operator comfort, optional starting and versatile attachments.

NEW in Traxcavators!

No. 933 — 1-yard capacity

Like its bigger brother, *balanced* to outproduce ordinary tractor-shovels of equivalent capacity. Also backed by *one* manufacturer to provide you the advantages of single manufacturing responsibility and one service source. Major features—same as the No. 955!

LEADERSHIP IN ACTION

NEW in wheel-type tractors!

The new DW21 Tractor ▲

(Series C.) New 300 HP Caterpillar Engine with Turbocharger. 10% more rimpull. New No. 470 LOWBOWL Scraper. 18 cubic yards struck, 25 cubic yards heaped capacity. New, wide-section 29.5-29 tires give big-footprint flotation and maximum traction. Many other new, thoroughly tested features.

The new DW15 Tractor ▶

(Series C.) 186 HP valve-in-head Caterpillar Engine. Speeds up to 24 MPH (31.3 MPH with optional gears) pulling loaded wagon or scraper. Heavy-duty clutch has air booster. Air brakes. Wide range of speeds: 10 forward, 2 reverse.

The new DW20 Tractor

(Series E.) Shown with new No. 456 LOWBOWL Scraper. This great new team highballs up to 32.1 MPH for fast cycle times. Same 300 HP engine with Turbocharger and wide-section tires as DW21. LOWBOWL design loads more material in less time by using tractor and pusher power at maximum efficiency.

LEADERSHIP IN ACTION

NEW in pipelayers!

The new No. 583

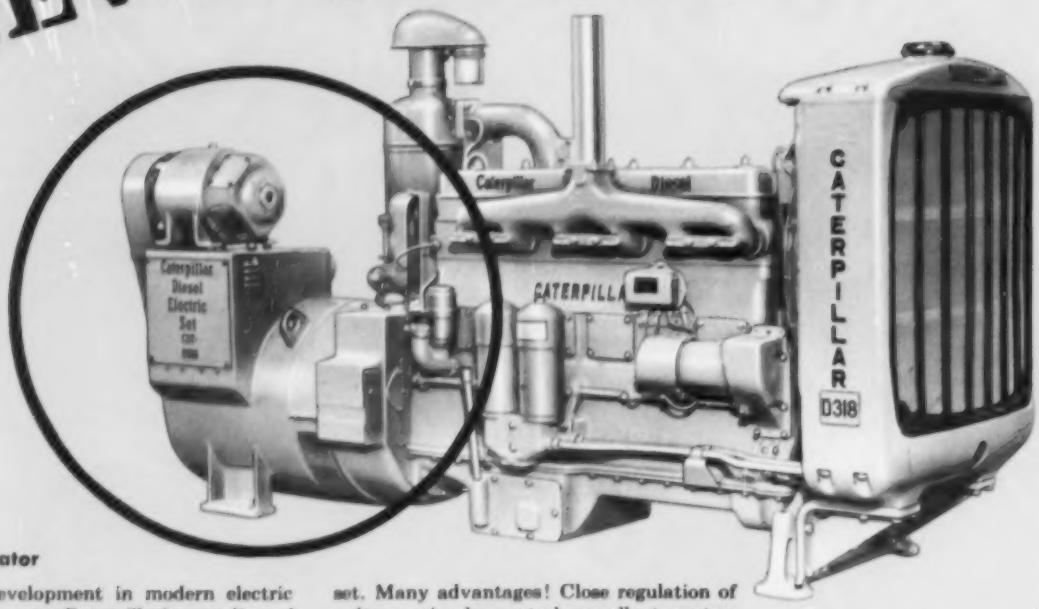
Here, for the first time, is a pipelayer that is *all* pipelayer—not a tractor attachment. It's the most efficient, highest capacity pipelayer in history. Lifting capacity of 130,000 pounds and 21-inch clearance. Three-stage torque converter in main drive and new hydraulically actuated counterweights. Stability is unequalled. A heavy-duty constant-mesh pipelayer winch transmission drives directly from the engine. Many more important advances, all designed to produce more profits for pipeliners.

NEW in motor graders!

The new No. 12 with oil clutch

With the addition of the job-proven oil clutch, the big, versatile No. 12 Motor Grader gives you more economy and efficiency than ever. The new clutch increases work life since the constant oil bath lubrication reduces wear on all moving parts. There is less maintenance; 1500 hours without adjustment is not unusual and no external lubrication is needed. The new No. 12 is more efficient because the clutch is constantly cooled, eliminating clutch fade and slippage due to overheating.

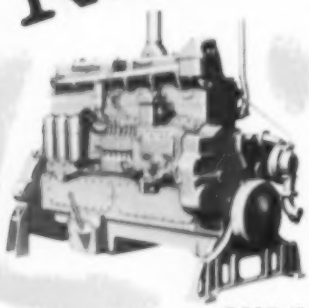
NEW in generators!



Cat Generator

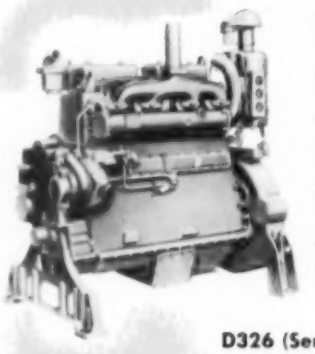
A major development in modern electric power. Brings to Caterpillar's new line of Diesel Electric Sets the efficiency of the externally-regulated set in a self-regulated set. Many advantages! Close regulation of voltage, simple control, excellent motor-starting ability, easy hook-up with other generators . . . 100% backed by Caterpillar.

NEW in diesel engines!



D342—210 HP maximum @ 1200 RPM

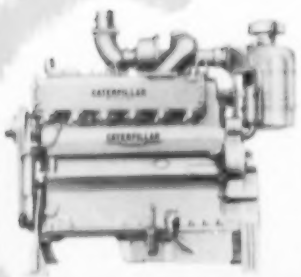
Incorporates the latest advances in modern, compact, heavy-duty diesel design. Offers better operation, less maintenance, higher horsepower. Choice of 3 starting systems—air, electric, gasoline. Like all Caterpillar Engines, burns wide range of fuels without fouling.



D339—140 HP maximum @ 1200 RPM

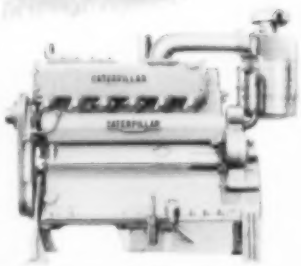
Combines new compactness with greater efficiency, economy and higher horsepower. A modern, heavy-duty 4-cylinder unit with new smoothness of operation. Choice of 3 starting systems. Many other advantages, including full-flow filtering system.

D337 (Series F) with Turbocharger 310 HP maximum @ 2000 RPM



New Turbocharger utilizes exhaust heat to drive supercharger, delivers air in proportion to engine's need. New hydraulic valve lifters practically eliminate adjustment, provide quiet operation. Greater displacement for more power. Choice of 3 starting systems. Available as Electric Sets and Industrial Engines with complete line of attachments.

D326 (Series F)—200 HP maximum @ 2000 RPM

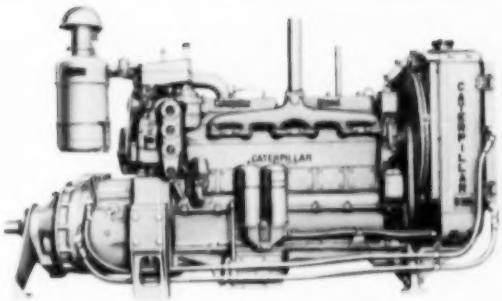


Like other new, heavy-duty Cat Diesels, offers you more for your money than any engine in its power range. Many major features, including hydraulic valve lifters and full-flow filtering. Greater displacement for more power. Choice of 3 starting systems. Available as Electric Sets and Industrial Engines with complete line of attachments.

LEADERSHIP IN ACTION

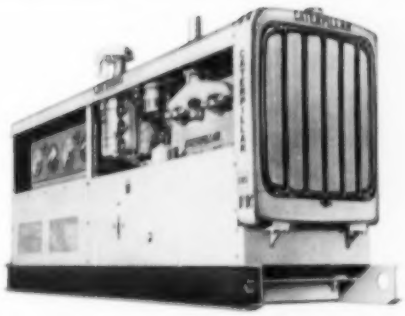
NEW in torque converters!

Caterpillar now offers a wide choice of torque converter power units in standard packages. Torque output is automatically matched to load for smooth load starts or control of load without use of clutch. Overloads can't kill engine. Your Caterpillar Dealer can supply these units. He also has full facilities and parts for service.



NEW in welders!

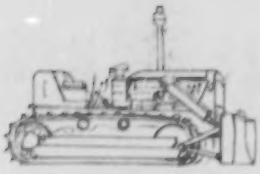
The new Caterpillar Twin Arc-Welder provides one engine, one base, and TWO 300-ampere welding generators. Four-cycle Cat Diesel picks up load instantly without missing or injector trouble. Compact design cuts transport and maintenance cost. Operators can weld at different voltages at same time. Single (3 KW) exciter cuts weight and size, provides ample excitation plus plenty of 115-V. DC for auxiliary tools.



NEW in portable electric sets!

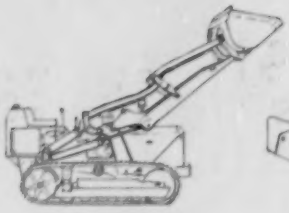
Cat Portable Electric Sets are now available in nine models, 30 to 315 KW, and in all usual voltages, 50 to 60 cycle. They're complete units with cooling system, fuel tank and switchgear, mounted on skids, semi-trailer or full trailer. Easy to hook up and operate, ready to work anywhere.

LEADERSHIP IN ACTION

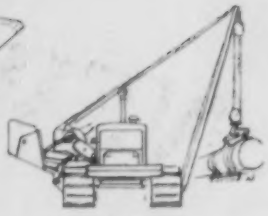


TRACK-TYPE TRACTORS

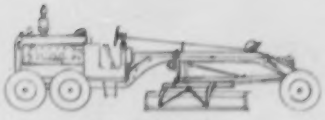
WHEEL-TYPE TRACTORS



TRAXCAVATORS



PIPELAYERS



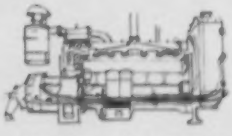
MOTOR GRADERS

SCRAPERS

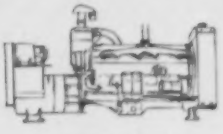
BULLDOZERS

RIPPERS

INDUSTRIAL ENGINES

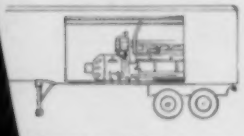


TORQUE CONVERTERS



GENERATORS

FOR YOU CATERPILLAR LEADERSHIP PROVIDES THE MOST COMPLETE LINE IN THE INDUSTRY



PORTABLE ELECTRIC SETS

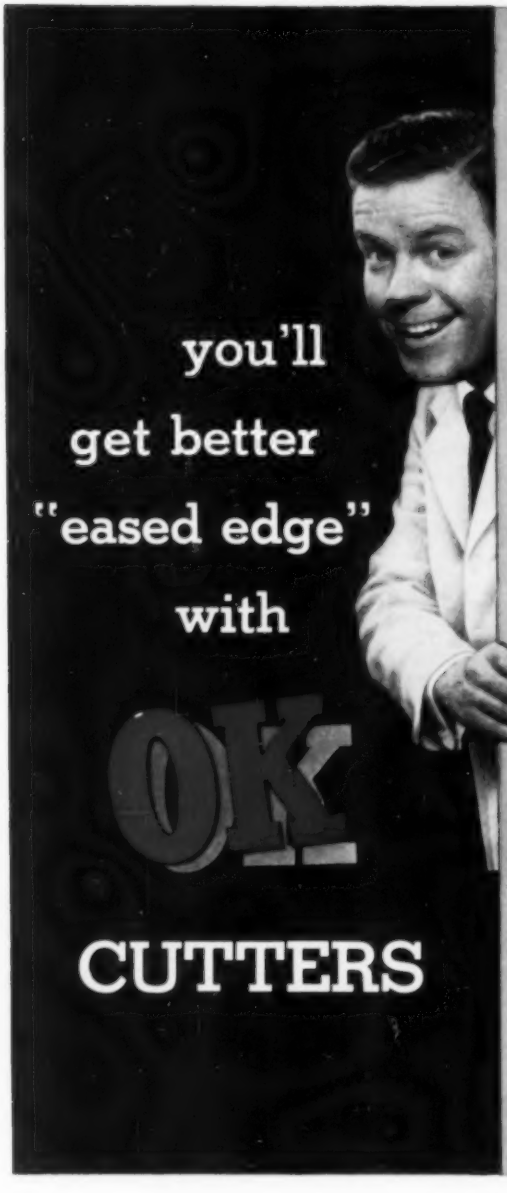
WELDERS

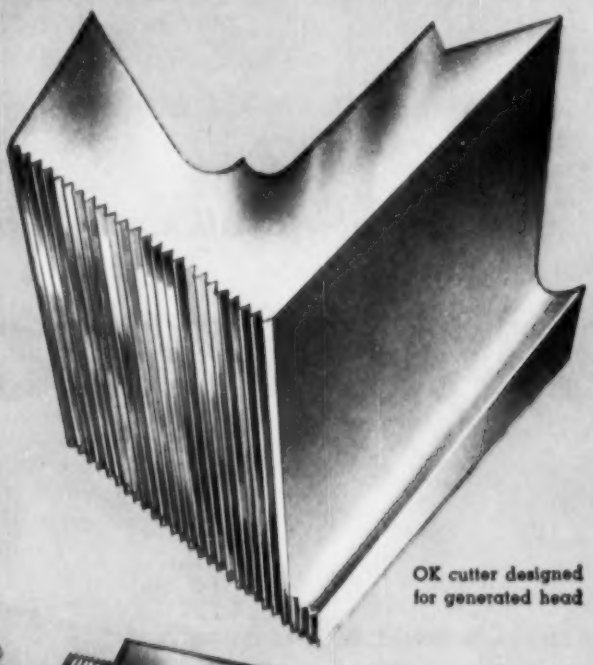
Year after year you have seen the results of Caterpillar leadership. It is always in action. It never stands still. The full resources of Caterpillar research, both in the laboratory and right in the field with you, are constantly devoted to improving products and developing new ones. This means that Caterpillar is your partner in progress, bringing you better and better products, greater opportunities for profitable work. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

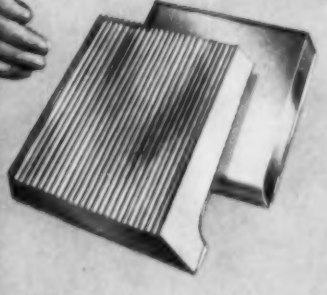
*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

LEADERSHIP IN ACTION

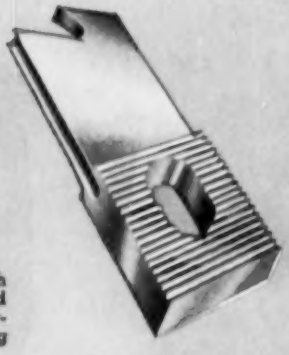




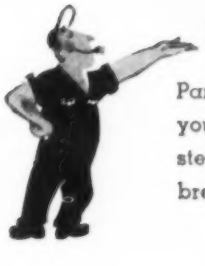
OK cutter designed for generated head



OK patented easy-edging cutter with filler plate to match. This eased edged knife can be used in any standard corrugating side head, thus eliminating the expense of special heads.



These OK splitter knives are carried in stock ready for immediate delivery. Sizes for 1/4" and 5/16" kerf.



all surfaces are ground to produce a better edge

Particular attention is given to the **GRINDING** of all corrugations to insure a perfect fit in your cutter head. All OK Cutters are made of OK No. 6 grade of hardened and tempered steel. They are designed to stand up under high speeds and heavy feeds without breaking, and to hold an edge for extremely long runs.

For complete information write Dept. 40-R.

GO WITH OHIO GREEN

THE OHIO KNIFE CO.

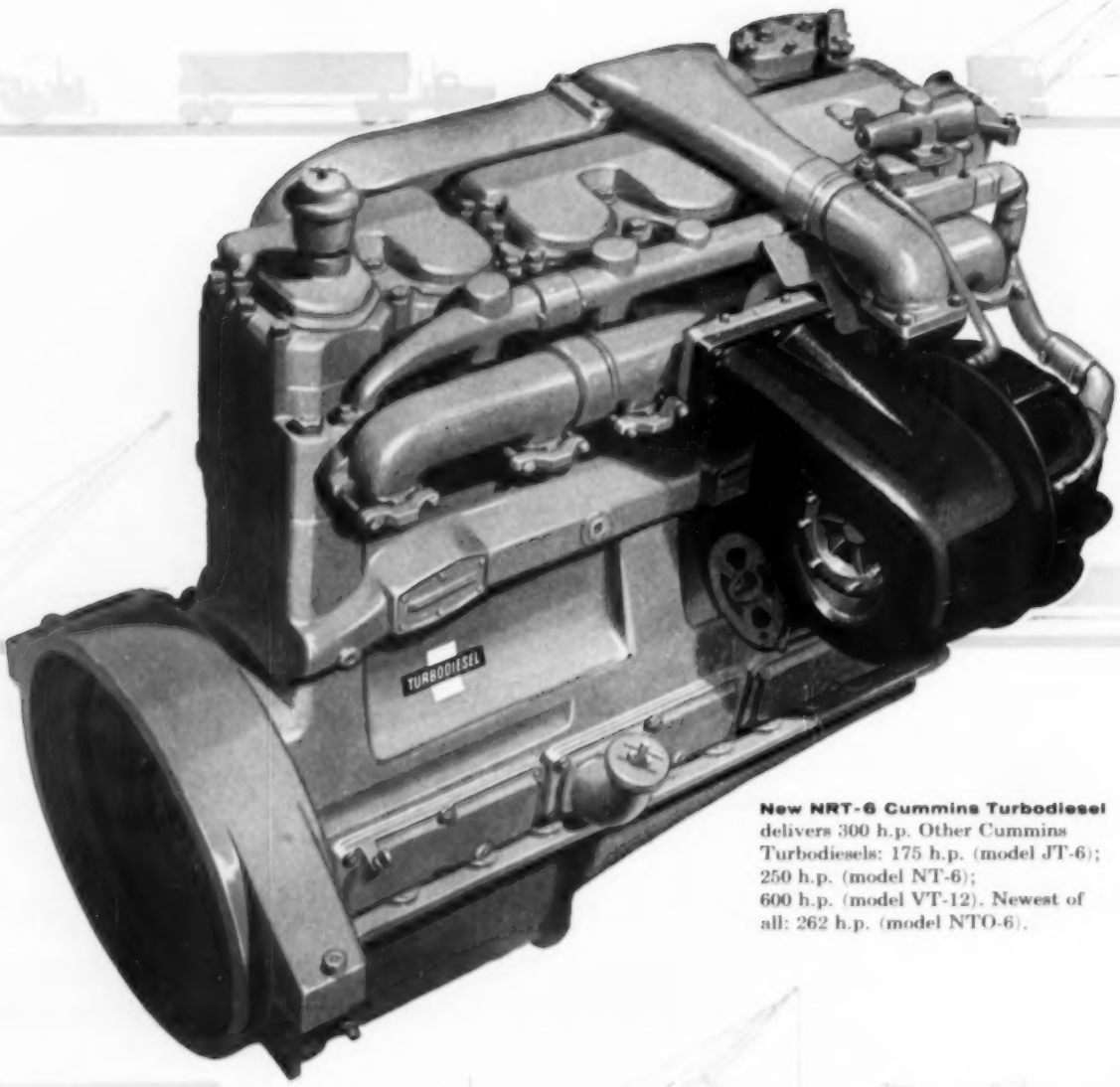
CINCINNATI 23, OHIO

PLANER KNIVES • VENEER KNIVES • CHIPPER KNIVES • HOG KNIVES

BRANCH OFFICES: Chicago, Illinois; Cleveland, Ohio; Salem, Ohio; Detroit, Michigan; Los Angeles, California; Mt. Vernon, New York; Portland, Oregon; Seattle, Washington

Now available in all kinds of logging equipment...

NEW CUMMINS



New NRT-6 Cummins Turbodiesel delivers 300 h.p. Other Cummins Turbodiesels: 175 h.p. (model JT-6); 250 h.p. (model NT-6); 600 h.p. (model VT-12). Newest of all: 262 h.p. (model NTO-6).

TURBODIESELS

POWER!.....PERFORMANCE!.....PROFIT!

Here's a new power concept to make *your* logging jobs more profitable. Cummins Turbocharging brings you extra diesel horsepower without added engine weight by harnessing the energy in normally wasted exhaust gases . . . boosting engine efficiency.

Actual on-the-job tests show significant savings in time, fuel and equipment. And, like all Cummins Diesels, the new Turbodiesels feature the simple-to-understand-and-service PT fuel system and easy-as-gasoline maintenance. Added time-saving economy feature for logging men: Special service and parts availability on job sites is arranged by your local Cummins distributor to serve *your* needs.

No wonder *more and more logging men today are standardizing on Cummins Diesels.*

CUMMINS *diesels give you the big plus* **MORE PROFIT**

L-12

Cummins Engine Company, Inc.
Columbus, Indiana

I am interested in finding out more about the advantages of Cummins Turbodiesels. Please send me:

_____ Your directory of manufacturers offering Cummins Diesels in their equipment.

_____ Your booklet illustrating Turbodiesel principles.

I am interested in converting my present equipment to Turbodiesel power.

_____ Please have your representative call.

Name _____

Position _____

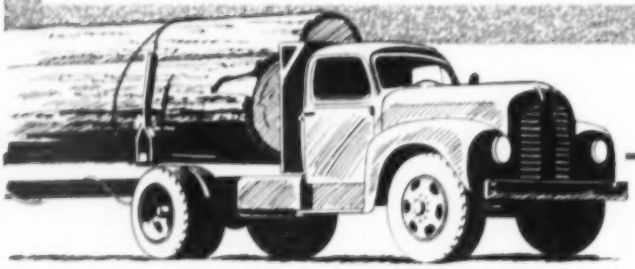
Company _____

City _____ State _____

On any job...*in any engine*

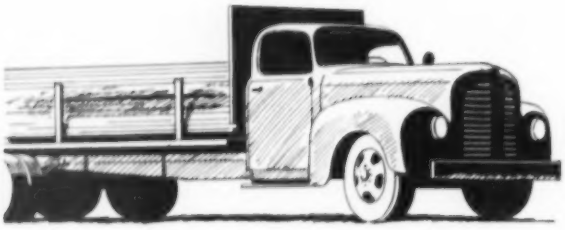
TYDOL HD

CUTS WEAR 3 WAYS!



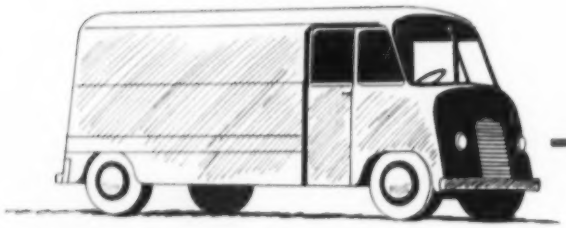
CLEANS

Tydol HD's quick-working detergency is balanced for your particular needs... gets rid of sludge and gums, frees sticky valves and rings, keeps oil lines and parts clean.



AS IT PROTECTS

Saves wear even in shut-down—inhibitors against combustion acids prevent rust, corrosion and pitting on cylinder walls, crankshaft and bearings.



AS IT LUBRICATES

Tydol HD's high V.I. assures quick, easy starts and its tough film won't drain off or break down under heavy loads. Put Tydol HD's triple protection to work in your fleet.

THE RIGHT OIL
for every service condition

TYDOL HD...*High Detergency* for any type engine in normal heavy duty.

TYDOL HD S-1...*Higher Detergency* for stop-and-start service or engines subject to continuous heavy loads.

TYDOL HD S-2...*Highest Detergency* for hard, heavy diesel service in the most extreme operating conditions.

Ask your nearby Flying "A" Representative which Tydol HD is best for you.

TYDOL HD

MOTOR OIL

TIDE WATER ASSOCIATED OIL COMPANY
(Western Division)

Turbodiesel power.

_____Please have your representative call.

City_____State_____

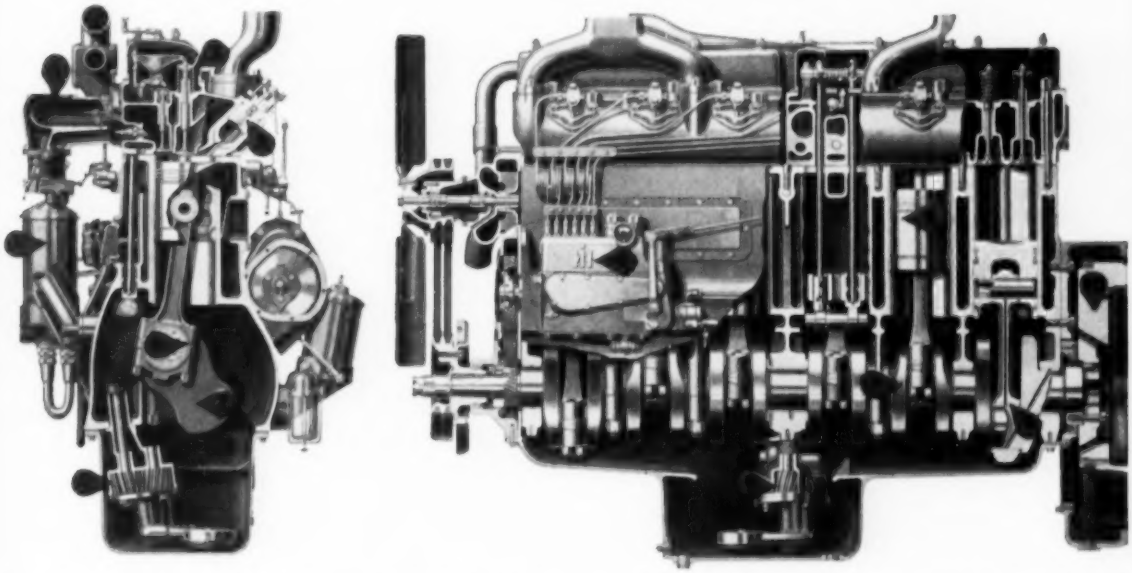
1 FULL FLOW OIL FILTER—Before oil goes under pressure to engine bearings, all harmful particles are removed by replaceable plastic-impregnated, full-flow filters.

2 POSITIVE ROTATORS EXTEND VALVE LIFE. Exhaust valve rotators keep valves turning, at all engine speeds, distributing heat uniformly around the valves to keep deposits from building up on stems and seats, and also to prevent sticking, scuffing, and burning.

3 POSITIVE ALL-WEATHER STARTING. Seconds-fast, International Diesels start in coldest weather on exclusive gasoline starting system. Cylinders are pre-heat conditioned to give complete, clean combustion, instantly, on switching to operation on Diesel fuel.

4 ALUMINUM-ALLOY PISTONS have a thick crown at the top for rapid dissipation of excess heat direct to the cooling water. Hardened, replaceable, cylinder sleeves, three compression rings, with top ring chrome-plated, plus two oil control rings assure long-lasting, gas-tight seal for high compression ratios of over 15 to 1 . . . providing top fuel and oil economy.

5 SIMPLE, SINGLE-HOLE, INJECTION NOZZLE and pre-combustion chamber set at 45° angle for smooth, clean combustion of low grade No. 2 fuel oil under all engine speed and load conditions.



6 NEW IH INJECTION PUMP: Single plunger type on four-cylinder models, twin-plungers on six-cylinders . . . provide all cylinders equal amounts of fuel, precisely metered to load, whether for idling, maximum horsepower, or maximum torque under overload. New, harder injection plungers have up to four times longer life.

7 HEAVY-DUTY FORGED CRANKSHAFT with large diameter, induction-hardened journals provides long-lasting, wear-resistant bearing surfaces . . . rifle-drilled for full pressure lubrication . . . dynamically balanced for smooth operation.

8 REPLACEABLE TRI-METAL BEARINGS provide precision clearance for full-pressure lubrication and thousands of hours of heavy-duty work. Smooth electroplating of white alloy metal over copper-lead, precision bonded to a steel back, carries heavy loads with minimum friction.

9 FULL-PRESSURE LUBRICATION for long life. Big, gear-type pump delivers oil under controlled pressure through full-flow filters and rifle-drilled passages to main and connecting rod bearings, piston pins, camshaft, timing gears, and valve rocker arms.

10 HEAVY FLYWHEEL helps to maintain uniform speed under widely varying load conditions. Available to match standard makes of clutches, fluid couplings, and torque converters.

Hour after hour. . year after year

INTERNATIONAL ENGINES

. . . stay on the job with least upkeep

All International engines are built throughout to give you a full measure of power that stands up and stays on the job. They are precision-manufactured of thoroughly tested materials under continuous, quality-control inspection. Pressure lubrication through rifle-drilled crankshafts and internal passages assures trouble free performance. Inbuilt precision is fully protected from dirt and grit under the worst of job operating conditions by the best of fuel, oil, and air filters.

Heavy-duty radiators, power take-offs, and other factory-engineered power unit components are available to fit these long-life, money-saving engines to your job requirements. You can also get them as original equipment in most makes of construction machines. Call your nearest International Industrial Power Distributor or Power Unit Dealer for all the facts.

There's a size and type of International engine to fit your needs . . . from 16½ to over 200 hp.

INTERNATIONAL HARVESTER

INTERNATIONAL
INDUSTRIAL POWER

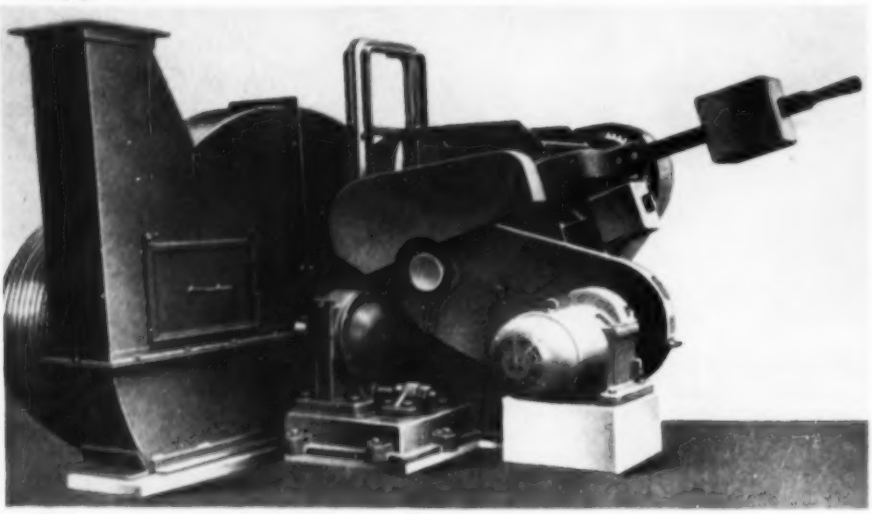
MAKES EVERY LOAD A PAYLOAD

Check These Outstanding Features of SODERHAMN SLAB CHIPPERS

In the conversion of your sawmill waste to uniform chips, you cannot use a "toy chipper." You need a rugged Soderhamn Slab Chipper, which can now be inspected at over sixty installations.

The Soderhamn Slab Chipper is the *only* slab chipper on the market that takes slabs, edgings, cutoffs, box factory and veneer waste and round logs *simultaneously*, to meet rigid pulping specifications.

This is your guaranty of full utilization of all sawmill leftovers as well as the increased use of tree tops brought into your sawmill which can be barked and chipped with sawmill logs, thus eliminating additional capital outlay and cost of labor accentuated by the new minimum wage law.



HF-60 and HF-30 SLAB CHIPPERS
Available in sizes to meet individual requirements.

- ✓ **CHECK FOR** — Performance on written guarantee basis.
- ✓ **CHECK FOR** — Low cost maintenance.
- ✓ **CHECK FOR** — Low horsepower requirements.
- ✓ **CHECK FOR** — Less splinters and fines than found with regular pulpwood chippers converting sawmill waste.
- ✓ **CHECK FOR** — No additional labor as with horizontal feed slab chippers.
- ✓ **CHECK FOR** — Wear plates and knife adjuster to quickly adjust chip lengths specified by pulp mills.
- ✓ **CHECK FOR** — Direct factory service as to engineering and prompt availability of spare parts.

Soderhamn's complete line of modern and efficient wood waste utilization equipment includes the famous low-cost SODERHAMN D-3 BARKER, which handles 8-foot lengths and up and the ANDERSON-CLARK Heavy Duty Pivoted Arm BARKER which effectively and economically debarks both hardwoods and softwoods up to 120 linear feet per minute. Also the new fully automatic Cambio Barker that takes wood down to 3' in length. Distributor for the Pettibone-Mulliken Cary-Lift.

We invite you to write for further information on Soderhamn equipment today.

SODERHAMN MACHINE MANUFACTURING CO.
SODERHAMN, SWEDEN SINCE 1864 TALLADEGA, ALABAMA

CANADIAN REPRESENTATIVES: East Coast: Forano Limited, Montreal, Canada

to fit your needs...from 16½ to over 200 hp.

INTERNATIONAL HARVESTER

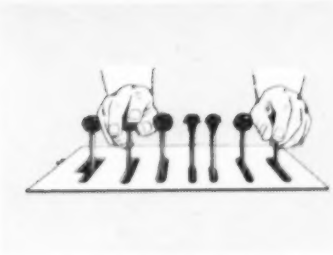
INDUSTRIAL POWER

MAKES EVERY LOAD A PAYLOAD

How Link-Belt Speeder engineering helps both log loader and operator

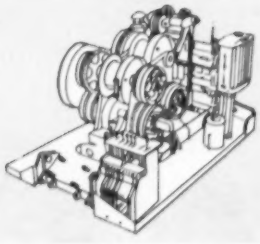
increase earning capacity!

STEPHEN VAUGHN LUMBER COMPANY IN OREGON find their LS-98X is "definitely the best method of loading logs." Operator says, "I really like the smooth swing and drum brakes, torque converter and foot throttle. They give me perfect control."



TWO-WAY SPEED INCREASE

• Speed-o-Matic, power-hydraulic control, provides easy, smooth response *for speed* with accuracy. It's engineered to *reduce operator fatigue*, boost output.



EXTRA POWER, STAMINA

• Anti-friction bearings, splined shafts, precision machinery alignment helps convert more of rated hp into greater line pull. Rugged construction permits use of extra power.

MORE WORK-TIME

• Speed-o-Matic minimizes downtime. Clutches are hydraulically actuated, self-compensating. Eliminate frequent stops for adjustment, turns downtime into work-time.

Link-Belt Speeder log-loaders, crawler or rubber-tired, give lumbermen a perfect combination of power and agility . . . speed with accuracy — highlighted by power-hydraulic control, maximum line pull in the industry (size for size), free spooling drums, accessible machinery, precision manufacture and many other features. Link-Belt Speeder Corporation, Cedar Rapids, Iowa.

LINK-BELT SPEEDER

Builders of a complete line of crawler and rubber-tired shovel-cranes

Your Factory-Trained Sales and Service Specialists

NELSON EQUIPMENT CO., Portland, Oregon

HOWARD-COOPER CORP., Seattle, Wash.

WESTERN MACHINERY CO., Spokane, Wash.

WESTERN EQUIPMENT CO., Boise, Idaho

EDWARD R. BACON CO., San Francisco, Sacramento, Oakland, Fresno, Calif.

MONTANA POWDER & EQUIP. CO., Helena, Billings, Mont.

PURVES RITCHIE LIMITED, Vancouver, B.C.

EATON AXLES

Proven Performance in Every Type and Size

The rugged housing used in famous Eaton 2-Speeds is also used for Eaton single-reduction and double-reduction axles—the three heads are interchangeable.

Behind every Eaton Axle there is almost a half-century of truck axle manufacturing experience. The advanced engineering and quality construction which have made Eaton 2-Speeds famous for stamina and low-cost hauling are also found in Eaton single-reduction, double-reduction, tandem drive axles, and front axles. In more than two million motor trucks, Eaton experience and engineering know-how are reflected in outstanding performance records, minimum hauling costs, and longer vehicle life.

EATON MANUFACTURING COMPANY — AXLE DIVISION

CLEVELAND, OHIO

PRODUCTS: Sodium Cooled, Poppet, and Free Valves * Tappets * Hydraulic Valve Lifters * Valve Seat Inserts * Jet Engine Parts * Rotor Pumps * Motor Truck Axles * Permanent Mold Gray Iron Castings * Heater-Defroster Units * Snap Rings Springtites * Spring Washers * Cold Drawn Steel * Stampings * Leaf and Coil Springs * Dynamatic Drives, Brakes, Dynamometers

8300-TON R. D. WOOD *hydraulic press*

now in full-scale production of dry process hardboard for a large west coast manufacturer. The press has 8 openings, and is expandable to 15. Steam platens measure 54" x 200" with a steam pressure of 750 psig. In this press, as in every R. D. Wood product, *quality* is the prime consideration.

Write for information or engineering counsel on R. D. Wood hydraulic presses for hardboard manufacture.

R. D. WOOD COMPANY

PUBLIC LEDGER BUILDING • PHILADELPHIA 5, PENNSYLVANIA

Representatives in Principal Cities

MAKERS OF HYDRAULIC PRESSES AND VALVES

FIRE HYDRANTS

CAST-IRON PIPE

GATE VALVES

GAS PRODUCERS

ACCUMULATORS

Corley Anniversary Models

6 Brand New Belt Feed Saw Mills

All With Flanged Wheels and Railroad Type Rails

All Fast

Number 2 Sawmill

All With Roller Bearing Feeds

All Profit Makers

All Accurate

Never before in our fifty years have we had so many outstanding features in conventional type sawmills. There is a model to answer any lumber production problem.

•

CORLEY MILLS CUT ACCURATE LUMBER

Corley Manufacturing Co.

CHATTANOOGA • TENNESSEE

DIRECT FACTORY BRANCHES:
LITTLE ROCK, ARK. • PORTLAND, ORE.

Corley Number 2 Sawmill
3″ or 4″ Ball Bearing Feed
30″ Headblock Opening

Corley Number 20 Sawmill
3″ or 4″ Ball Bearing Feed
40″ Headblock Opening

Corley Number 4 Sawmill
4″ or 5″ Ball Bearing Feed
37″ Headblock Opening

Corley Number 40 Sawmill
5″ or 6″ Ball Bearing Feed
46″ Headblock Opening

Corley Number 8 Sawmill
8″ Ball Bearing Feed
44″ Headblock Opening

Corley Number 80 Sawmill
8″ Ball Bearing Feed
60″ Headblock Opening

NEW EXECUTIVES of J. H. Baxter & Co. are (L to r) W. W. JACKSON, gen. sales manager; R. K. McCULLOCH, asst. gen. sales mgr. and N. Calif. dist. mgr.; C. A. CHADBOURNE, pres.; ALFRED X. BAXTER, exec. vice pres.

Five Firms Merge to Form Parent J. H. Baxter & Co.

• New officers have been elected to head J. H. Baxter & Co. following the merger of its associated firms into the parent company, J. H. Baxter & Co., one of the west's major producers of pressure-treated forest products.

C. A. Chadbourne has been named president to succeed A. M. Baxter, son of the founder, J. H. Baxter, who will continue active in reorganization as a vice-president. Chadbourne, formerly executive vice-president, assumes his duties January 1, 1956, the effective date of the merger.

Assuming the executive vice-presidency is Alfred X. Baxter, grandson of the founder and nephew of the immediate past-president. Gardner P. Pond, continues as vice-president and district manager for Southern California. R. B. Mossman is secretary-treasurer of the merged companies, and W. E. Jackson, general sales manager.

Other key personnel are R. K. McCulloch, assistant general sales manager and district manager, Northern California; Willard O. Spies, manager, production and timber department; William C. Cairns, Portland district manager; Roy F. Gillespie, Eugene district manager; Hugh McClure, Seattle district manager; and J. T. Napier, general plant superintendent.

Products of the merged companies will carry the trade name BAXCO. Involved in the merger are Baxco Corp., J. H. Baxter & Co. of Oregon, J. H. Baxter Timber Co., Puget Timber Co., and Puget Timber Co. of Oregon. Only remaining associated company is J. H. Baxter & Co., Ltd., in Canada.

The new main office is at 120 Montgomery St., San Francisco. J. H. Baxter & Co. supplies pressure-treated poles, piling, ties, construction timbers and lumber all over the world from its treating plants and yards in Alameda and Long Beach, Calif., and The Dalles and Eugene, Ore.

Heavy Lifting
...at the Mill or in the Forest
Fast Traveling
...on Dirt Roads or Paved Highways

UNIT 357 MOBILE CRANE . . . equipped with either grapple, tongs, or sling . . . always rates high in logging operations. UNIT'S short turning radius for close quarter operations, together with speed and accuracy, make hoisting and swinging loads onto trucks or freight cars, easier and faster.

The Full Vision Cab gives the operator complete visibility in all directions. Convertible to clamshell, dragline, shovel, or trenchoe, the UNIT 357 is readily adaptable for maintenance, road-building, or other types of jobs. For log handling efficiency, investigate UNIT. Write for descriptive literature.

UNIT CRANE & SHOVEL CORPORATION
6615 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.

½ or ¾ YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL

All Models Convertible to ALL Attachments!

power with CHRYSLER INDUSTRIAL V-8 ENGINES

Output's up, cost's down when your equipment is Chrysler-powered. First, because you've a *truly industrial* engine, an engine designed, built and equipped for heavy-duty operation. A check of the heavy-duty quality features listed here will give you an idea of the kind of performance you may expect from a Chrysler Industrial V-8 Engine.

Second, you've an industrial engine with *oversquare* design—its bore diameter exceeds its stroke—giving you all the advantages of resulting short-stroke performance. Pistons and all moving parts operate at unbelievably slow speeds, thereby greatly reducing friction. (For example, at 2000 engine r.p.m. Ind. 56 Engine pistons travel approximately 1200 feet per minute.) This, in turn, means greater power from the same amount of fuel, cooler engine operation, longer engine life.

Third, you've a deep-breathing engine, thanks to a unique "opened-up" design manifold. This means high volumetric efficiency, greater fuel economy. With Chrysler Industrial V-8 Engines you can select and equip your engines to use whatever fuel best meets your requirements—gasoline, natural gas or L-P-G fuels.

Yet despite all their advantages, Chrysler Industrial V-8 Engines cost less to buy, to install, to operate. They will do fully as much or more than ponderous slow-speed, long-stroke engines. If your equipment is not Chrysler-powered and you can use power within the 270 to 331 cubic inch displacement range, contact the nearby Chrysler Industrial Engine Dealer. Ask him about Chrysler Industrial In-Line 6 Engines too. Or, if you prefer, write: ***Dept. 1912, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***

Here, for example, are some of the heavy-duty quality features and materials you find in Chrysler Industrial V-8 Engines:

CRANKSHAFT—heavy-duty, forged steel, flame or induction hardened. Chrysler-exclusive undercut fillets for added strength. Fillets are shot-peened to counteract surface stresses and fatigue failures.

CRANKSHAFT BEARINGS—heavy-duty, tri-metal with Chrysler-exclusive cast copper-lead intermediate layer with nickel alloy dam to prevent possible corrosion caused by acids in oil.

Combination of Hardened Crankshaft and Heavy-Duty Crankshaft Bearings—offer greater resistance to the abrasive effects of dirt.

VALVE SPRINGS—twin concentric stainless steel. Extra strong dual springs operate as a unit, but either will operate valve alone should necessity arise.

VALVE TAPPETS—hydraulic, adjusting automatically to compensate for expansion, contraction and valve wear. Undercut to prevent sticking due to varnish or sludge deposits.

ENGINE COOLING—maximum allowable cooling water temperature rise between inlet and outlet is approximately 15°. Hottest spot in engine is only 20° hotter than the coolest . . . thereby reducing cylinder block distortion.

TIMING CHAIN—heavy-duty, wider than average for longer life.

PISTONS—aluminum alloy with thermostruts to control piston expansion.

EXHAUST VALVE ROTATION—positive, automatically spreads wear around the entire valve and valve seats. Valves make from ten to fifteen complete revolutions per minute at the speed of most equipment.

EXHAUST VALVES—extra hard stellite valve faces and valve seat inserts. Stellite seat inserts retain hardness in the presence of gases as hot as 1500° F.

SPARK PLUGS—resistor-type for long life. Spark plugs and wiring are covered for absolute protection against dirt and moisture.

DISTRIBUTOR—dirt and moisture proof with sealed cap.

Chrysler Ind. 52 Engine—270 cubic inch displacement

HORSEPOWER WITH A PEDIGREE

CHRYSLER INDUSTRIAL ENGINES

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

For log hauling and road building

"Eucs" are your best bet!

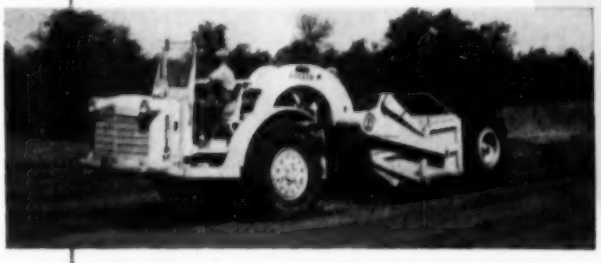
Built for tough logging service, "Eucs" deliver "plus" performance by increasing production and reducing hauling costs. Big payload capacity, faster cycle time and dependable job availability get more work done with lower maintenance cost and less time off for servicing and repairs.

If you're using conventional trucks to move big loads on short or long hauls, or if your road building costs are eating into profits, your Euclid dealer can probably show you how to save money. Have him give you information on the complete Euclid line today... Log Haulers, Rear-Dumps, Bottom-Dumps, Scrapers and Tractors... he'll be glad to assist with your hauling problems.

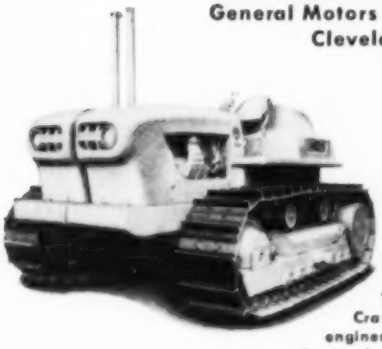
EUCLID DIVISION
General Motors Corporation
Cleveland 17, Ohio

The FD Log Hauler has a rated capacity of 100,000 pounds... 218 h.p. diesel engine... 16.00 x 25 drive tires... 15 forward speeds... hydraulic speed retarder and No-Spin differential.

With payloads of 120,000 pounds, this rugged TD "Euc" is giving a good account of itself on the toughest operations. It has a 300 h.p. diesel with Torqmatic Drive, No-Spin differential and 18.00 x 25 drive tires.



Ideal for building and maintaining roads, this "Euc" S-7 Scraper has a heaped capacity of 9 cu. yds. It is powered by a 143 h.p. diesel... makes non-stop turns in 26 ft.



This new TC-12 Twin Crawler has two 194 h.p. engines. Each drives one of the tracks through a separate Torqmatic Drive. No other tractor has as much horsepower, workability and service accessibility.

Euclid Equipment

PIONEER MANUFACTURER OF SPECIALIZED OFF-THE-HIGHWAY EQUIPMENT
FOR MOVING EARTH—ROCK—COAL—ORE AND OTHER MATERIALS

GM GENERAL MOTORS

Tough construction . . . speed . . . versatility make LIMA Type 44 star performer in off-the-road timber handling

Tough construction plus speed and versatility make this Lima Type 44 a star performer in off-the-road timber handling for Circle "S" Construction and Logging Co. Its long, wide crawlers give it a strong, stable base to travel and work anywhere fast . . . even in heavy brush. A 25-ton capacity lets it tackle the heaviest timber handling jobs with ease.

Like every machine in the Lima line, the Type 44 is designed and built with the emphasis on quality . . . to give *you* peak performance at low operating costs without expensive maintenance and repair.

COMPARE QUALITY! No other machine gives you as much as LIMA!

1. Piston-ring-type dirt seal rings and retainers.
2. Moving parts are flame or induction hardened for longer life.
3. Main machinery is placed well back of center of rotation.
4. Anti-friction bearings at all important bearing points.
5. Big capacity drums and sheaves are easy on cables.
6. Propel and swing gears and power take-off are enclosed in a sealed oil bath.
7. Torque converter (optional on certain types).
8. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts.

COMPARE and you'll specify crawler, truck or wheel mounted LIMAS for *your* logging needs. Get the full story today from your nearby LIMA distributor . . . or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

Let us send you our new bulletin, "LIMA for Logging." It's crammed with detailed information on the full line of quality-built LIMA machines for the logging industry. You're sure to find in it complete descriptions of just the right machines for your every timber handling need.

LIMA SHOVELS · CRANES · DRAGLINES · PULLSHOVELS

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Seattle, Washington

Feenaughty Machinery Company
600 Front Street
Boise, Idaho

Dietrich-Collins Equipment Ltd.
890 S.W. Marine Drive
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Modern Machinery Co., Inc.
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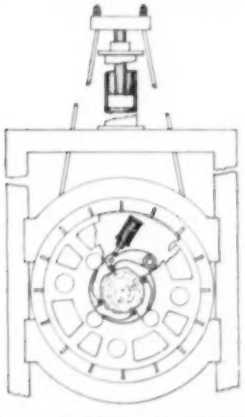
Redding, California

See the New NICHOLSON

Installations at Pope & Talbot, Inc., St. Helens, Oregon

Nicholson Rotobarker installation at the U. S. Plywood Corporation (SHASTA DIVISION), Anderson, California

PATENT PENDING



Cut-away section showing one of the multiple Air Cylinders that engage or dis-engage the tools that scrape and drag the bark off the log.

1. Lineal log feed rates of from 30 to 120 ft. per minute.
2. Log diameters 6" to 60".
3. Very low horsepower requirements.
4. Proper log cleaning for all pulping processes.
5. Dry, burnable bark by-products.
6. Heavy duty, rugged construction.
7. Minimum wood loss or log damage.
8. May be mounted directly in log haul, with debarking ring removable from log path.
9. Bark removal by air powered scraper tools which rotate around the log. The log does not revolve.
10. Maintenance by your millwrights, only one man to operate debarker.
11. Eliminates any water pollution problem.
12. Six different sizes and models to suit individual mill requirements.

NICHOLSON

Designers and Builders of Production Woodworking Machinery, Log Barkers, Sash and Door Machines, Trim Saws, Special Machinery

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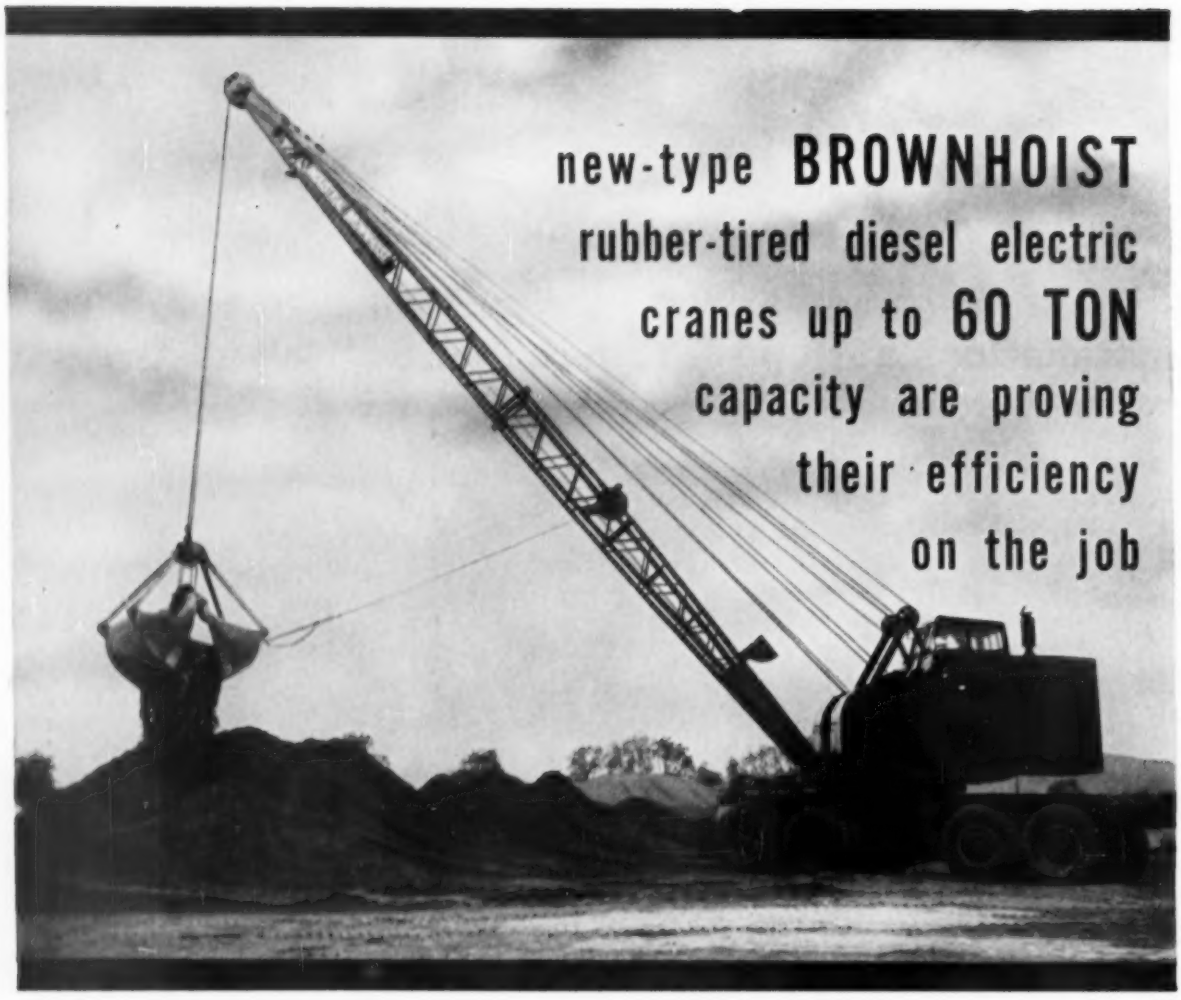
In Canada available from Nicholson-Murdie Machines, Ltd., Victoria, B. C.



183

BROWNHOIST MATERIAL HANDLING EQUIPMENT GIVES A LIFT TO AMERICAN INDUSTRY

INDUSTRIAL BROWNHOIST CORPORATION
BAY CITY, MICHIGAN • DISTRICT OFFICES: New York, Philadelphia, Cleveland, Chicago, Denver, San Francisco, Montreal • AGENCIES: Detroit, Birmingham, Houston

The new Brownhoist Wagon-Cranes are specifically designed to do an outstanding job wherever high mobility and high capacity are required. You'll see them at work performing heavy duty jobs in mines, quarries, steel mills, for railroad and lumber operations and for many other large industries. Equipped with dynamatic clutch, anti-friction bearings at all essential points, power steering, electric travel and electric rotation. Mounted on a 12 wheel crane carrier capable of speeds up to 8 miles per hour, the unit can be operated by one man from easy-to-reach controls. Economical to operate. Available in capacities from 25 to 60 tons. For specification folder or further details, get in touch with our nearest representative or write us at Bay City.

SUBSIDIARY OF Penn-Texas

BROWNHOIST

Announcing the New IRVINGTON SAWMILL TRIMMER

A *CHAIN-DRIVE* TRIMMER DESIGNED SPECIFICALLY FOR SAWMILL DUTY

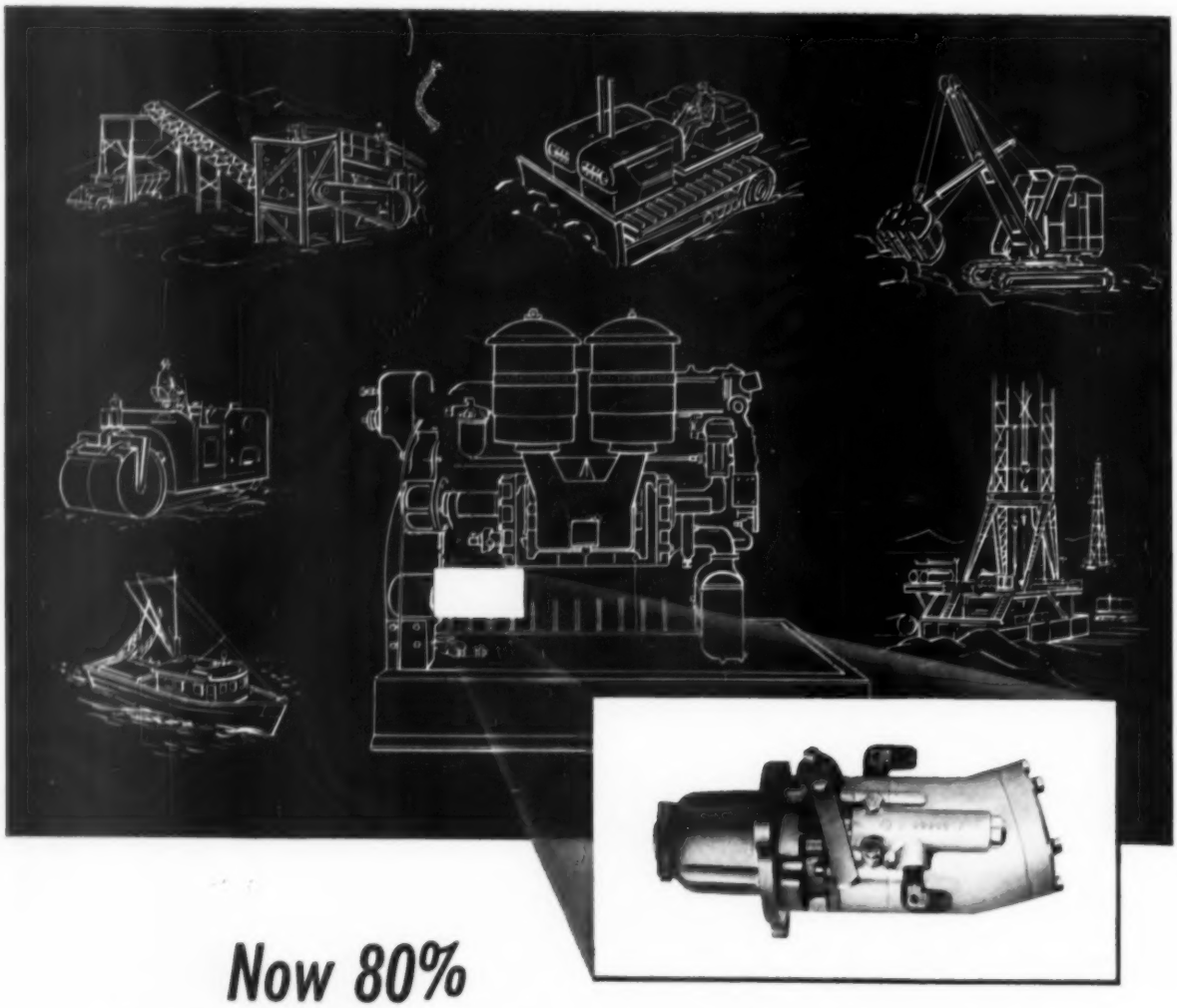
From top to bottom—the new IRVINGTON #55 Sawmill Trimmer embodies NEW construction and operating features; brute strength where it's needed—ball bearings at all vital operating points—a new concept in air cylinder cushioning—a new enclosed saw ladder design—all molded together for speed, stamina and with the *guarantee* of low maintenance. The Irvington #55 is backed-up by Irvington's nearly 50 years of experience in building QUALITY trimmers and End-Surfacers.

WRITE OR PHONE. Find out now why it will be more *profitable* to buy an Irvington #55 Sawmill Trimmer.

Choice of 1 or 2-foot saw ladder arrangements, also choice of having ladder hung on either infeed or outfeed side of trimmer. Photo of 1-foot saw ladder arrangement. Ladders hung on outfeed side of trimmer.

Irvington MACHINE WORKS

TWO PLANTS:
1808 N. E. 7th Ave., Portland 12, Ore.
3 Colfax N.E., Grand Rapids 5, Mich.



Now 80% Faster Detroit Diesel Cranking with the new Low-Cost GM Hydrostarter

TESTS PROVE that a Hydrostarter gets a General Motors Detroit Diesel up to starting speeds 80% faster than regular starting systems.

That means fast, sure starts anywhere, anytime—means your GM Detroit Diesel-powered equipment starts *right now* as soon as you pull the starting lever, even at low temperatures or after your equipment has been idle for long periods.

With a Hydrostarter on your GM Detroit Diesel engine, you enjoy thousands of starts without parts replacement, maintenance or downtime expense because all components are self-lubricated and sealed against dirt.

You can order a Hydrostarter for your present engines or on your next GM Detroit Diesel. Your distributor has them available for you now—call him today or write direct for more information.

DETROIT DIESEL

Engine Division of General Motors

Single Engines . . . 30 to 300 H.P.

Multiple Units . . . Up to 893 H.P.

America's Largest Builder of Diesel Engines

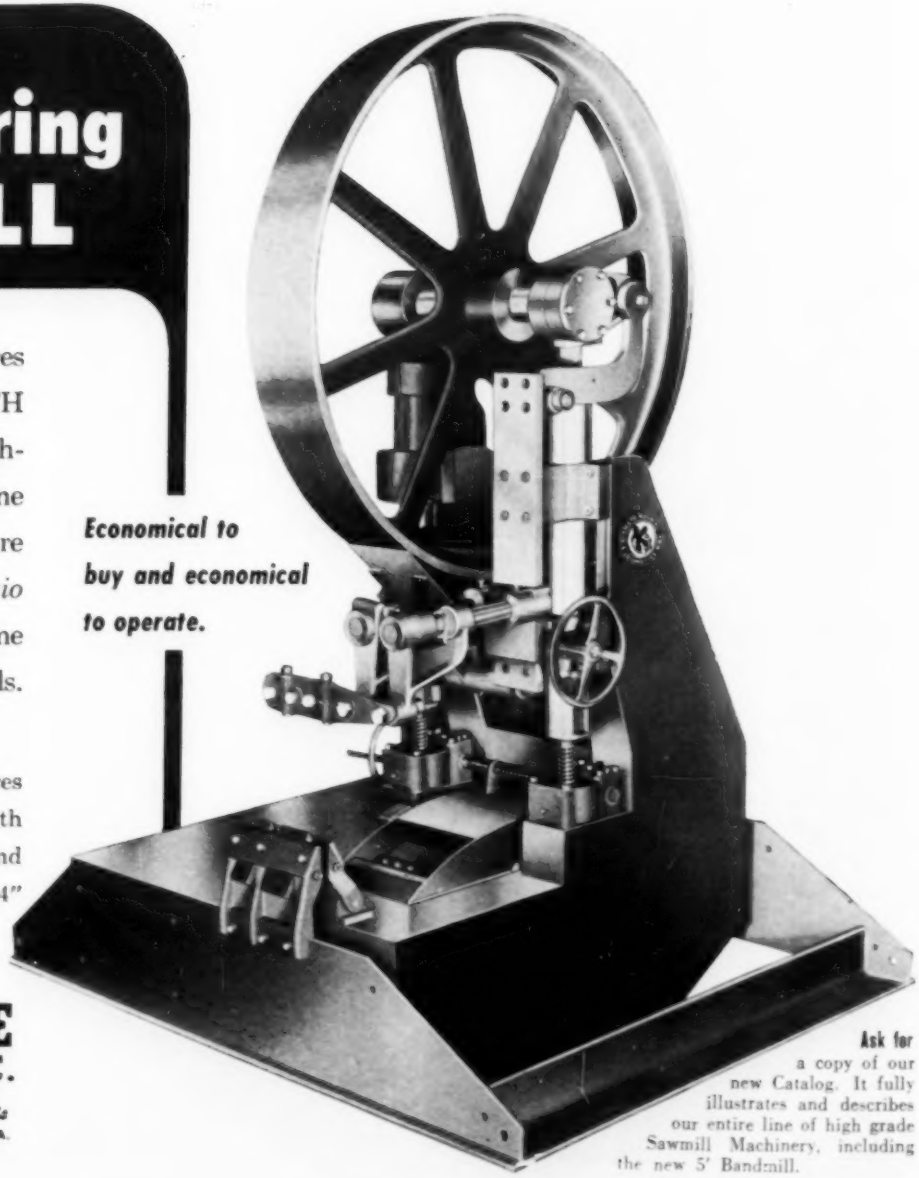
NEW anti-friction Bearing 5′ BANDMILL

THIS new 5′ Bandmill gives you *all* the important features of the 6′, 7′, 8′ and 9′ Bandmills produced by KLAMATH MACHINE, which have operated with high efficiency throughout many years. The mill is designed principally for use in line bar resawing or as a 60″ resaw. All strain points of contact are ground and hardened tool steel knife edges—*and the strain ratio remains constant*. General design and construction are the same you have had in the larger KLAMATH MACHINE Bandmills.

SPECIFICATIONS—The new 5′ Bandmill wheels have 9″ faces for saws 10-11″ wide. This Bandmill cuts a maximum width board of 34″; will pass a board 29″ wide between sawline and columns; will split a 32″ log; and will cut a 4″ slab from a 44″ diameter log.

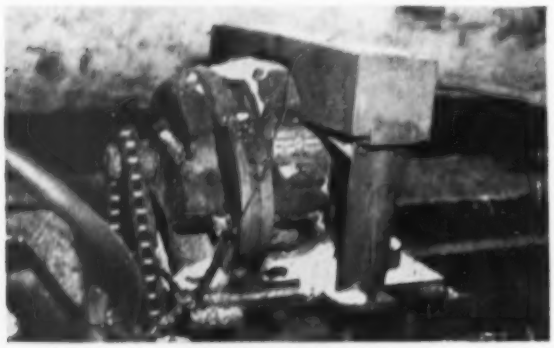
KLAMATH MACHINE & LOCOMOTIVE WORKS INC.
P. O. BOX 208 • KLAMATH FALLS, OREGON, U. S. A.
Look for the Indian Head on all **KLAMATH MACHINE** *products*
Export Division: FRAZAR & HANSEN, Ltd., 301 Clay Street, San Francisco 11, California, U. S. A.

Economical to buy and economical to operate.

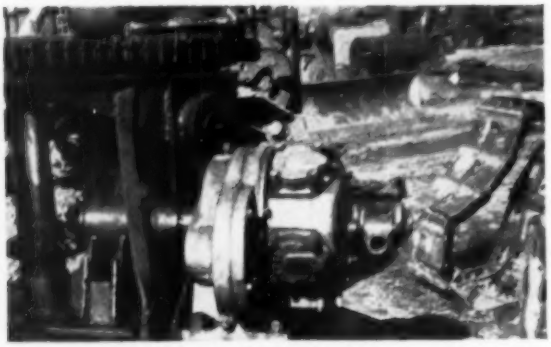


Ask for a copy of our new Catalog. It fully illustrates and describes our entire line of high grade Sawmill Machinery, including the new 5′ Bandmill.

Reduce fire hazards . . . increase efficiency . . . with GARDNER-DENVER Air Motors

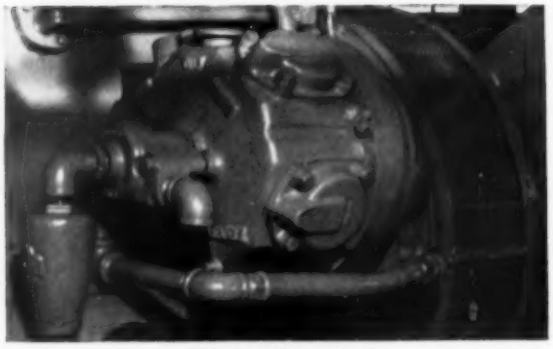


On the carriage



On a log unloader

On a log turner



For diesel starting

For hoisting, pulling and hauling — powerful Gardner-Denver Air Hoists.

For compressed air power — compact, efficient, easily installed — Gardner-Denver WB Compressor

Write for full information

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THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

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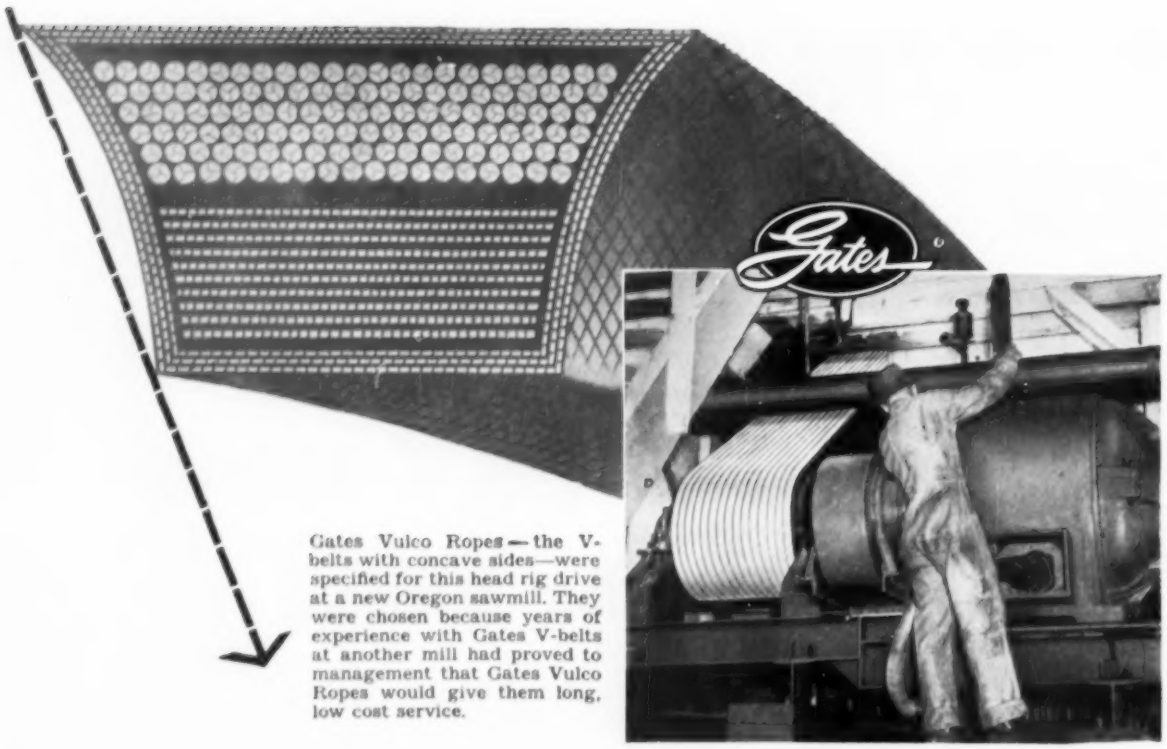
GET SET with the MOST of the FINEST

In Power Shovels • Draglines • Clamshells • Cranes • Hoes • Pile Drivers

P.S. The best time to get set is NOW, Today!

MARION POWER SHOVEL COMPANY
MARION, OHIO, U. S. A.



Gates Vulco Ropes — the V-belts with concave sides—were specified for this head rig drive at a new Oregon sawmill. They were chosen because years of experience with Gates V-belts at another mill had proved to management that Gates Vulco Ropes would give them long, low cost service.

Concave sides keep belt costs down!

Industry is saving thousands and thousands of dollars every year by specifying Gates Vulco Ropes—the V-Belts with *concave sides* (U.S. Pat. No. 1813698).

Here's the interesting reason *why* Gates belts save money:

On the bend around the sheave the *precisely engineered* concave sides (Fig. 1) of the Gates belt fill out and become straight (Fig. 1-A). Thus the belt makes uniform contact with the sides of the pulley. That means sure pulling power and *even distribution of wear*. Longer wear, fewer replacements cut belt costs...reduce down time...contribute to profits.

Simple test proves value of concave sides

Bend a straight-sided belt (Fig. 2) and feel the sides *bulge out* around the bend. The bulging sides prevent the belt from fitting evenly in the pulley groove (Fig. 2-A). Uneven contact causes uneven wear...shortens belt life...increases costs.

Keep belt costs *down* by specifying Gates Vulco Rope Drives—the V-Belt with *concave sides*. Belts you need are readily available from nearby distributor stocks. The Gates Rubber Company, Denver, Colorado—*World's Largest Maker of V-Belts.*

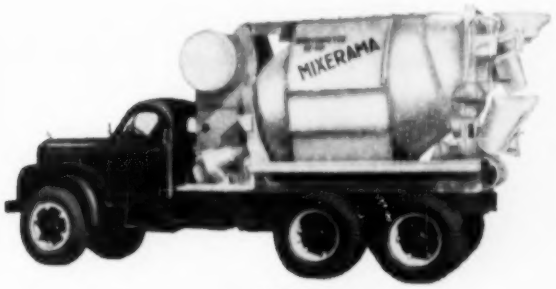
Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA 35 D

GATES VULCO ROPE DRIVES

GOOD NEWS

for our customers!



Worthington HI-HUP Truck Mixer

New Worthington Blue Brute Rotary Compressor

As authorized distributors for Worthington Construction Equipment we now *sell, rent* and *service* equipment that meets every contractor's need.

WORTHINGTON

BLUE BRUTE Portable Compressors and Contractors' Tools

HI-HUP Truck Mixers and Portable Mixers

The widespread reputation for dependability and economical operation that Worthington equipment has earned on the toughest kinds of jobs is backed up by our quick service and complete parts stock. Call on us at any time — we'll be glad to recommend the right size and type of Worthington equipment for your specific needs. 10152

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Complete WORTHINGTON Sales, Service and Repairs at both stores

For B. C. Forest Products Ltd.

"trucks bring 'em in faster!"

B. C. Forest Products uses three Kenworth tractors that drive through Fuller 5-FS-1220 Transmissions and four Hayes units equipped with Fuller Model 4-FS-1440 Transmissions over twisting, rutty roads with some grades better than 20 percent. Both models are designed with closely-spaced ratios and ample capacity for torque converter operation.

British Columbia Forest Products Ltd. has completed their four-year program of converting the Harris Camp Show on Vancouver Island from a 100 percent railroad operation to a *100 percent trucking operation.*

B. C. Forest Products Ltd. made this conversion from rails to rubber because work had been seriously bottlenecked by the limited number of railcars that could be handled per day. They chose trucks because trucks provide faster, more flexible and more economical performance.

And to transmit the power for their trucks—like hundreds of other loggers—B. C. Forest Products Ltd. chose Fuller Transmissions.

Again and again, in all kinds of on- and off-highway service where load and road conditions are toughest, Fuller Transmissions have proved themselves. Their outstanding performance and *customer satisfaction* have created such a demand that leading truck manufacturers have *standardized* on Fuller Transmissions.

Insist on a long-lasting, easy-shifting, quiet-operating Fuller Transmission in your trucks—to bring *your* loads in faster and at lower cost. 110 full-manual control or semi-automatic models designed for your job.

Fuller TRANSMISSIONS ®

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO, MICHIGAN

Unit Drop Forge Div., Milwaukee 1, Wis. • Shuler Axle Co., Louisville, Ky. (Subsidiary) • Sales & Service, All Products, West. Dist. Branch, Oakland 6, Cal. and Southwest Dist. Office, Tulsa 3, Okla.

$9,000 SAVED!

in first 9 months

Says Mr. Clarence A. Sather

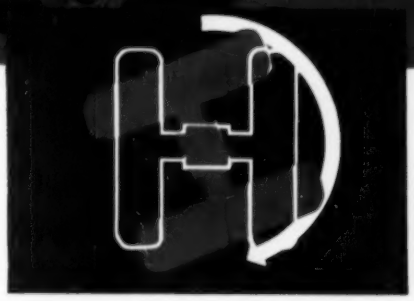
JOB PROVED

GERLINGER Fork Lift Truck Biggest Labor-Saver and Expediter for PEKS, Inc., Minneapolis, Minnesota.

Let Clarence A. Sather, partner and manager of PEKS, lumber and building supply firm, tell you the whole story:

"With only three trucks we had to hire others when we got busy. Now Gerlinger cuts down loading and unloading time so much we keep our own trucks rolling all day long. I was amazed, in looking over our 9 months' statement, to see it had saved us $9,000 in yard and delivery expenses with the same equipment, more salesmen, bigger volume. Last year we paid over $3,600 in hired trucks in those same nine months."

New records of production and profit are the usual report when Gerlinger is on the job. Call your Gerlinger dealer for information on the fork lift truck or material carrier for YOUR heavy-duty material handling.



ANOTHER GERLINGER "*Exclusive*" FEATURE

Operators praise the ease and safety with which they can maneuver Gerlinger Fork Lift Trucks. Pivotal mounted steering axle assembly equalizes load and maintains constant 3-point suspension, instantly adjusting to uneven road contours.

GERLINGER CARRIER COMPANY
DEPT. T-5 • DALLAS, OREGON

Please send FREE Gerlinger Fork Lift Truck catalog ☐
Gerlinger Material Carrier catalog ☐

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City_____
Zone____ State_____

GERLINGER PRODUCTS

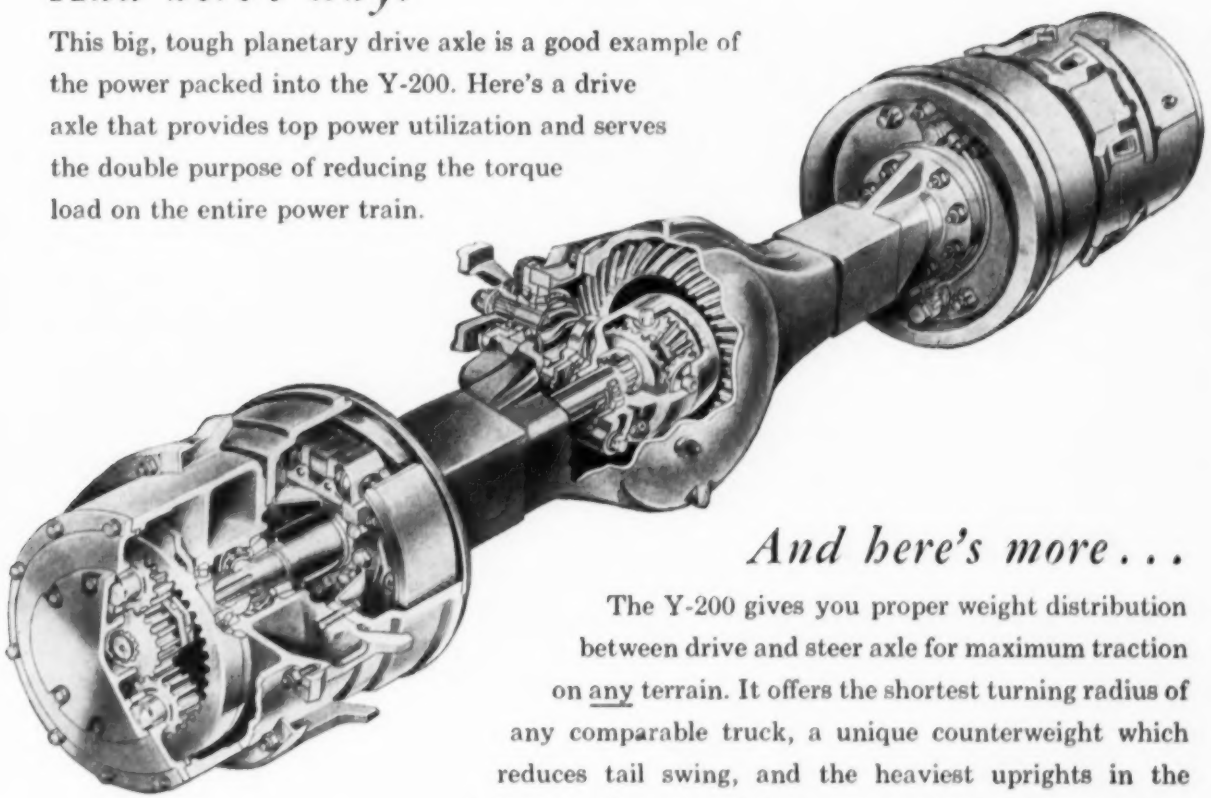
From mud-hole

to paved road . . .

Clark's Y-200 just doesn't stop!

And here's why:

This big, tough planetary drive axle is a good example of the power packed into the Y-200. Here's a drive axle that provides top power utilization and serves the double purpose of reducing the torque load on the entire power train.



And here's more . . .

The Y-200 gives you proper weight distribution between drive and steer axle for maximum traction on any terrain. It offers the shortest turning radius of any comparable truck, a unique counterweight which reduces tail swing, and the heaviest uprights in the industry. Your benefit? A truck that will outperform anything in its field. Your local Clark dealer will be happy to supply you with performance details—why not give him a call?

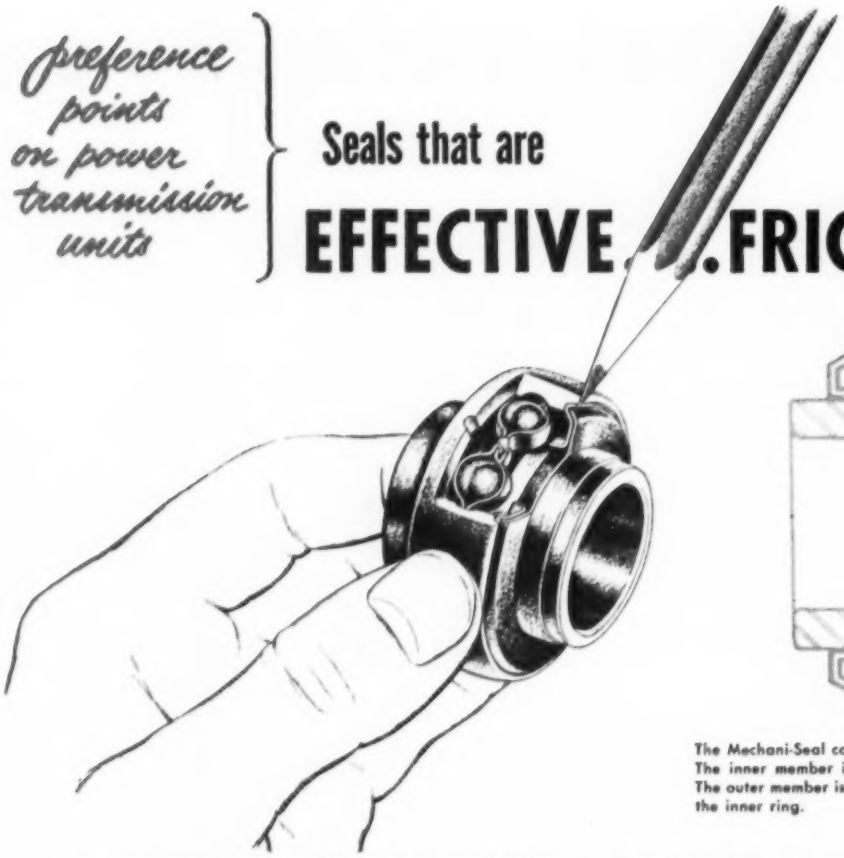
Mud or shine, the tough Y-200 with Log Kicker Device handles logs weighing 20,000 lbs. With a 10 inch underclearance at the uprights, plus excellent weight distribution, the Y-200 gives top performance under severe yard conditions.

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 156, Michigan

CLARK® EQUIPMENT

preference points on power transmission units

Seals that are EFFECTIVE . . . FRICTIONLESS



The Mechani-Seal consists of two "dished" steel plates. The inner member is fixed securely in the outer ring. The outer member is pressed on the outside diameter of the inner ring.

For applications where the bearing must be thoroughly protected against the entrance of foreign matter, or where grease must be absolutely retained within the bearing, the Fafnir Mechani-Seal Bearing offers definite advantages. This is the bearing you'll find in most Fafnir Ball Bearing Power Transmission Units.

The labyrinth design of the Fafnir-originated Mechani-Seal provides an inner trap seal for grease retention and an external rotating slinger for dirt exclusion. Close, but definite clearances between various seal members permit the bearing to "breathe". What's more, they insure it against drag, either in starting or running . . . no rubbing to introduce friction . . . no wear. Seals are integral with the bearing, are not subject to fouling or misalignment, and are corrosion and rust resistant.

When you compare design features, point for point, you can readily understand why the preference is for Fafnir Ball Bearing Power Transmission Units. For more details and a complete description of Fafnir Power Transmission Units call your Fafnir Distributor. The Fafnir Bearing Company, New Britain, Conn.

WIDE INNER RING BALL BEARINGS . . . with Mechani-Seals

PILLOW BLOCKS . . . standard and heavy series

FLANGE CARTRIDGES . . . standard and heavy series

CYLINDRICAL CARTRIDGES . . . standard and heavy series

FAFNIR
BALL BEARINGS
MOST COMPLETE LINE IN AMERICA

MATTISON 303 *Stroke Sander*

Provides:

INCREASED PRODUCTION – BETTER QUALITY

for

UNITED STATES PLYWOOD CORPORATION

Seattle, Washington

What the Mattison 303 Automatic Stroke Sander is doing for United States Plywood Corporation in their Seattle soft wood plywood plant is an example of what this machine is doing for a good many others.

On the 303 the hydraulic system for the operation of the shoe is simple yet positive in action providing smooth operation of sanding shoe the entire length of stroke.

For further information on the 303 let us send you our new free circular.

UNITED STATES PLYWOOD CORPORATION

Manufacturers and Distributors of Wildwood Plywood and Allied Products

Seattle Office - 4705 Thirteenth Avenue West - Seattle 99 Washington

January 22, 1954

Mattison Machine Works
Rockford, Illinois

Attention: Mr. W. C. Hagstrom

Gentlemen:

With reference to your inquiry about our experience with the Mattison #303 Hydraulic Stroke Belt Sander.

In the latter part of 1951, we installed a 10' Mattison #303 Double Belt Hydraulic Stroke Sander for sanding flush doors and hardwood faced panels. Several months ago we installed a second machine of the identical type.

We are particularly pleased with the absence of sniped panels due to the absolute accuracy of the hydraulic control mechanism on the sanding pad, which eliminates any possibility of overrun.

Our experience has been that we get increased production and a very high quality of sanding from the Mattison #303 Hydraulic Stroke Sander.

Yours very truly,

UNITED STATES PLYWOOD CORPORATION
(Wash.)

Keith Gunderson

Keith J. Gunderson
Plant Manager

MATTISON MACHINE WORKS

ROCKFORD · ILLINOIS

TAILORED POWER

FLEXIBLE POWER is the key to profitable hauling today. A vehicle must have the *workhorse pulling power* to haul heavy loads! *Torque* is needed for bad road conditions or hill-climbing! *Speed* is needed for fast hauling, to bring an empty vehicle back for new loads sooner.

TDA 2-Speed Axles answer trucking's need for flexible power. Exclusive double-reduction design permits a range of spreads all the way from 28% to 49% . . . in an almost unlimited number of gear combinations. TDA allows tailoring the power of your truck to meet any variety of hauling conditions.

COMES TO TRUCKING

with TDA 2-speed axles

Exclusive, double-reduction design offers almost unlimited possibilities of gear ratios and ratio spreads—this versatility provides tailored power for every trucking need.

How TDA's extra "spread" works to your benefit. *All* 2-speed axles employ an extra set of gears to give two ranges of speed or power to choose from . . . one for *pulling power*, the other for fast speed. Most 2-speed axles offer only one choice of "spread"—37%. Design limitations prevent changing this standard "spread".

However, TDA uses the exclusive double-reduction design. With TDA, spreads are available all the way from 28% to 49%. This means that your axle can actually be tailored to give you just the power you need. Not only can you specify the spread most suited to your immediate trucking need – but you can easily *change* from one spread to another by merely changing the low speed helical pinion and gear – *an easy mechanical change*.

TDA's more efficient use of engine power gives important benefits . . . high road speeds, faster deliveries, better payload, and maximum fuel economy. No matter what your hauling problem or load/road conditions you save with TDA.

How TDA's 2-Speed principle works! A husky hypoid ring gear and pinion set (No. 1 above) provide the *first step* of the total gear reduction for both fast and slow ratios. Two large, heavy-duty helical gear sets provide the *second step*. Both sets are of balanced size and capacity. One set (No. 2) is for fast speed; the other (No. 3) is for slow speed. The clutch collar (No. 4) power shifts to right or left to engage one helical pinion or the other.

Greater endurance, longer truck life with TDA. TDA's simple design eliminates small complicated parts and midget size gears. Large hypoid-helical design provides more teeth in contact—quieter operation and far less strain. Bearings are larger, too. All this adds up to more profitable operation under all conditions.

TIMKEN Detroit AXLES

TIMKEN-DETROIT AXLE DIVISION

ROCKWELL SPRING AND AXLE COMPANY

DETROIT 32, MICHIGAN

The Accepted TDA Standard

TRADE MARK REGISTERED

World's Largest Manufacturers of Axles for Trucks, Buses and Trailers

Plants at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio New Castle, Pennsylvania

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Increase axle life with GENUINE TDA EQUIPMENT PARTS

Take no chances with ordinary replacement parts. For sure, dependable, factory-type jobs, specify genuine Timken-Detroit Axle parts kits—identical to your axles' original equipment.

Each kit is complete—gives you everything you need in one handy package. Gaskets and shims, brake liners and rivets, steering knuckles, king pins and bushings, differential nests—for every size of brake and axle. Order by number from your dealer. Cut labor and adjustment costs. Get trucks back on the road quicker.

75 YEARS OF BUCYRUS-ERIE LEADERSHIP . . .

December 18 marks Bucyrus-Erie's 75th Anniversary. In the years since 1880, the company has been proud to bring many significant advancements to the design of excavators and cranes . . . the first electric excavators . . . the first crawler-mounted dragline . . . the first diesel shovel . . . and too many more "firsts" to detail here. Most important, however, the know-how back of these is yours in whatever Bucyrus-Erie machine you use.

President Theodore Roosevelt Visits Panama Canal: This Bucyrus-Erie shovel, one of 77 used on the Big Ditch, was included in his 1908 inspection tour.

The 22-B, shown here loading logs, has a world-wide reputation for outstanding performance. Another popular favorite in the woods is the 25-ton 22-B Transit Crane, carrier-mounted to give you rubber-tired mobility.

. . . GIVES YOU TOP PERFORMANCE TODAY . . .

You can expect top performance from a Bucyrus-Erie excavator or crane because it's *built right in.* It starts with Individual Design — which means that each model in the line is designed from the ground up to handle the rated load. There is no over-powering or over-dippering to create "new" models. Parts are properly proportioned, operating functions are effectively balanced. This results in fast work cycles and big payloads, with maximum time on the job and long service life. The extras Bucyrus-Erie puts into design and construction pay off many times over in added output and lower cost operation.

. . . PROMISES EVEN BETTER EXCAVATOR-CRANES TOMORROW

You can expect even higher performance standards from Bucyrus-Erie excavators and cranes in years to come. The development of new and improved designs, and the search for better materials and more efficient manufacturing methods never ends. With facilities unsurpassed in the industry, Bucyrus-Erie promises you machines that will serve you better than ever. 26Y55

BUCYRUS-ERIE COMPANY South Milwaukee, Wis.

75 Years of Service
to Men Who Shape the Earth

BUCYRUS ERIE

1880 • 1955

Plants at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio New Castle, Pennsylvania

©1955 RS&A Company

rivets, steering knuckles, king pins and bushings, differential nests—for every

adjustment costs. Our trucks back on the road quicker.

COUNT ON YOUR WICKWIRE ROPE DISTRIBUTOR FOR ENGINEERING ASSISTANCE

When it's a question of wire rope, the place to go is to your Wickwire Rope distributor. He knows your requirements. He knows wire rope and how it can be used to best advantage. In addition, he can provide you with this important extra—the technical assistance of Wickwire Sales Engineers. With the additional help of these capable specialists, he can give you expert, practical advice on even the toughest wire rope problems.

Your Wickwire Rope distributor is a good man to know. He's quality people handling quality products. Buy your wire rope and wire rope slings from him. You'll find that the many valuable services he offers far outweigh any apparent price advantage you might gain by buying direct.

CF&I WICKWIRE ROPE A CF&I PRODUCT

A PRODUCT OF THE COLORADO FUEL AND IRON CORPORATION

3150

Modern Truck Features That Mean Business!

Chevrolet trucks have got it! A full list of modern features that mean better business—on the job today and at trade-in time tomorrow!

When you get right down to it, any truck without all of Chevrolet's Task-Force features is still living in the past. Why risk losing money with an old-fashioned truck—both on the job and at trade-in time—when you can get a Task-Force model with the industry's most advanced features?

Most modern power—V8 or 6. There's longer life in Chevrolet V8's (extra cost in most models). With their short-stroke design—shortest of any leading truck—you can count on less friction and wear per mile. If you go for sixes—Chevrolet's gas-saving valve-in-head sixes are famous for their dependability. All engines are sparked by a modern 12-volt electrical system for quicker starting and smoother going!

Most modern comfort and safety features. New efficiency boosting advances like panoramic windshield, High-Level ventilation, softer seat action and concealed Safety Steps!

Most modern chassis features. New suspensions; new, more rigid frames; Power Brakes standard on 2-ton models!

See your Chevrolet dealer for details. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

NEW CHEVROLET Task-Force TRUCKS

CHEVROLET

Type A Shredder reduces oversize chips and bark.

Large Wood Hog shreds bark and waste wood.

JEFFREY SHREDDERS

for making hard board... reducing oversize chips, bark and wood waste

Jeffrey Shredders can produce an ideal chip for making hard board and chip core. Our machines can be equipped with specially designed internal parts for this lucrative application. Many producers are already turning lumber waste to profit. Write today—we'll tell you how Jeffrey Shredders play a part in the manufacture of this new building material.

Other popular shredder uses:

Pulpwood plants: oversize dry or green wood chips, caught by the screen as they come from the wood hog, are reduced by a Jeffrey Shredder in one operation, to a size suitable for digesters.

Bark and broken pieces of pulpwood, taken from the barking drums, are reduced to proper size for boiler fuel by Jeffrey Shredders.

Furniture factories: wherever furniture or other hard wood products are manufactured, the waste can be processed in Jeffrey Shredders to supply fuel for plant boilers.

Other manufacturing: to chip and shred pine to a fine product for extraction of turpentine, rosins and related chemicals. To reduce waste paperboard for re-use in making paperboard or insulation. To break bales of Kraft sheets, groundwood lap or sheets and other materials.

Remember, Jeffrey Swing Hammer Shredders and Wood Hogs have no knives to need sharpening. Wood is torn or shredded, never ground, resulting in a superior product.

Write for Catalog No. 855. The Jeffrey Manufacturing Co., Columbus 16, Ohio.

JEFFREY

CONVEYING • PROCESSING • MINING EQUIPMENT • TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

VOLUME 82 THE Lumberman NUMBER 13

DECEMBER, 1955

Industry Shares Radio Frequencies

as cooperative systems are developed to meet needs of smaller operators for communications

SHARING THE WAVE LENGTHS is the newest trend in the use of mobile radio by industrial forestry operations. Dictated by sheer necessity because of competition for the few remaining channels on the air spectrum, cooperative radio systems have proved their value to smaller logging firms unable to finance a complete two-way system by themselves.

Radio's value to the forest industries is on record. Tremendous savings have been effected in getting parts to broken-down equipment, reaching forest fires promptly, dispatching logging trucks and other equipment efficiently, getting injured men to first aid stations or hospitals promptly and in running an entire operation more efficiently.

"We'll never give it up" and "how did we ever get along without it?" are two eloquent summaries frequently heard from logging bosses, who in radio's infancy, even resisted the invasion of this electronic tool. But now it's different. When the logging superintendent or forester can flick a switch in his office or pickup and talk to his key men scattered on a timbered area embracing several hundred thousand acres, there's no fooling about the seven-league-boot impact of the magic air wave.

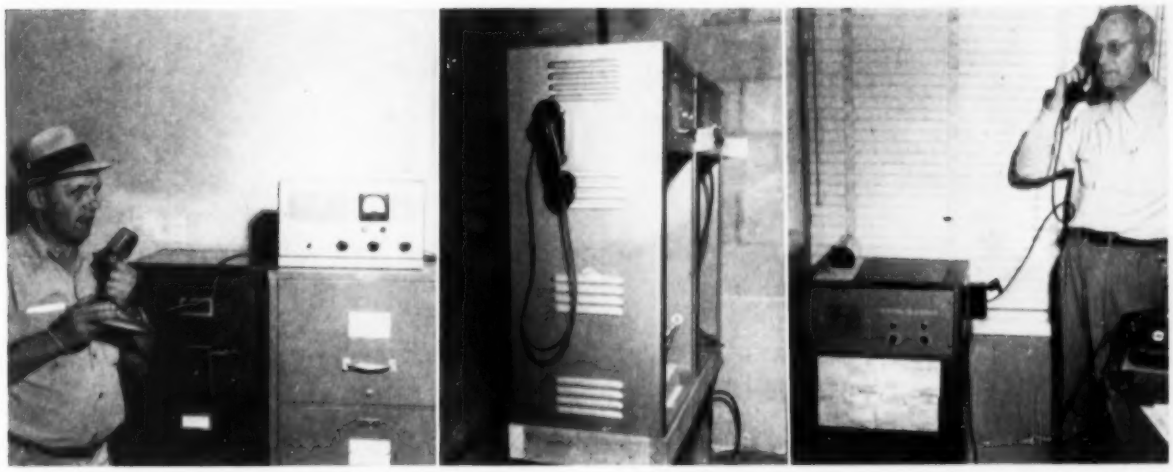
But the ever increasing demands for radio are taxing the capacity of the spectrum. There are too many uses for too few channels. The Forest Products Radio Service, established in 1949, as of September 1, 1955, had 10,800 transmitters in use representing some 10,000 mobile units. In addition, there is a Forestry Conservation Radio Service with about 27,200 fixed and mobile radio units. This tremendous expansion is proof of the job radio can do.

FOR TWO-WAY RADIO as a whole, as of Sept. 1, 1955, there were 300,000 safety and special authorizations. These covered nearly a million transmitters, because many mobile units are combined either on the base station license or separately on their own license. This breaks down thus: amateur, 140,000; aviation, 45,000; industrial, 203,000; land transportation, 200,000; marine, 50,000; public safety 220,000. This is an overall total of 860,000 transmitters.

Forest Industries Radio Communications, which chaperones all radio

EVERGREEN LOGGERS RADIO ASSOC., Stevenson, Wash., main base station is up 3300', 10 miles from control station at Stevenson.

THE PACIFIC COAST CO., Willits, Calif., has co-op system, here being used by G. J. McKILLICAN at the base station in Willits.



R. M. HEGEWALD, pres. of Hegewald Tbr. Co. (left), Stevenson, Wash., vice-pres. of Evergreen Loggers Co-op uses GE remote control unit in his office. Center, Evergreen's GE base and repeater units in transmitter building is compact package. R.: H. L. MERTZ, mgr. of Stevenson Plywood Corp. and Evergreen treasurer, communicates via the system's General Electric control station.

developments and licensing in the forest products industry, sums it up plainly through its spokesman, manager Elmer Surdam.

"The radio spectrum is a natural resource, like our trees. It has a limit to the number of systems which can be accommodated. The forest industries have the use of a very small fraction of the total available space. In many areas, our use of radio communications has already reached saturation. All channels have been assigned, yet many more applications are coming in to the Committee," emphasizes Surdam.

He states that there's only one way to get additional airlanes. That's to improve the equipment now in use and to be placed in service by narrowing down the width of the lane carrying the traffic. If the "skyroad" is 40 units wide and equipment can be built to carry the same intelligence on 20 units, the number of operating channels can be doubled. This, in effect, is what the Committee has asked the FCC to do by proposing rule modification to permit operations halfway between present assigned frequencies.

LICENSEES OPERATE UNDER Paragraph 11.6 of the Commission's Rules, which was placed there largely at the insistence of Robert Olin, Potlatch Forests, Inc., Lewiston, Idaho. Most of the cooperatives now organized were formed due to circumstances involved either in operations or from a mutual fire protection problem.

The problem of sharing frequencies is not as complicated as it first appears. It means operating a system with another company on the same frequency—a party line deal. Problems arise chiefly when too many transmitters are employed without an adequate operating procedure. Radio communications is intended primarily for emergencies; matters that can be taken up by contact or by phone should not be discussed on the air.

Co-ops must provide a mobile service—messages between mobiles and mobiles and base and mobiles. Traffic between two land or base stations degrades the service. The operating procedure of a co-op should be so arranged to enhance the mobile service, with precedence accorded to any emergency business.

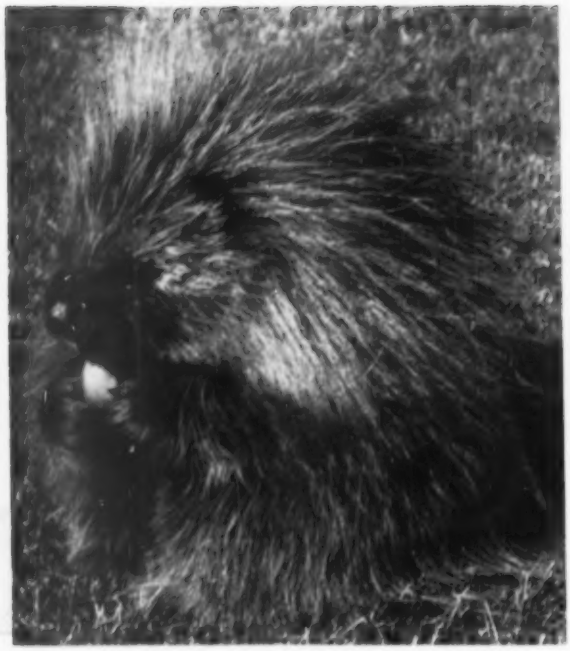
Forest Industries Radio Communications has led the field in the use of co-ops. This is probably because there are so many small independent operators in the west, where most co-ops now function. FIRC has been the instigator of these co-ops, because either you share or go without. FIRC's services usually have been advisory, although projects have been fed for extended periods until favorable action was secured from the Commission and an acceptable organization was established to be responsible for the license.

IN LICENSING CO-OPS, the Commission insists that some individual or corporation be responsible for the license. This usually leads to establishment of an organization to handle the system. Some prominent individual or corporation must take the lead on a local basis. FIRC can work through this contact forming the final organization and getting the field work accomplished.

The Commission has stipulated that all members using equipment in a co-op must be eligible in Forest Products Radio Service. They cannot be eligible in Railroad or the Petroleum industry. The group can own the units separately or collectively, but the entire network must be operated on a non-profit basis. This prevents any semblance of a local common carrier radio system being established or anyone operating the system for profit.

(Continued on page 116)

GORDON COLLARD, resident forester for Crown Zellerbach Corp.'s Beacon Rock Tract in Washington is Evergreen Co-op secretary. Here he is communicating via Gen. Elec. mobile radio set installed in his pickup truck.



CLOSEUP OF YELLOW haired porcupine which has taste for tree bark and kills or cripples trees. (Photos: US Fish & Wildlife Serv.)

DAMAGE TO TREES is caused by girdling action. Porky uses chisel-like teeth to ring tree, which kills top, causing spike top.

Foresters Battle Porcupines

which are ravaging timber crops in ponderosa pine region of Northwest

REST TREES ARE limby and wolfy, usually open grown. Porkies occupy them regularly.

JACK - THE - GIANT - KILLER of mythical fame has been overshadowed by Elmer-the-porcupine-baiter, a militant tree grower from Glenwood, Washington.

Following the adage, "when in Rome do as the Romans do", Elmer Lofgren of the J. Neils Lumber Co., is successfully counter-attacking porcupines, which have depradated his company's young ponderosa pines, by "thinking like a porcupine".

The results have been impressive. Lofgren estimates that since an active control program was started in the spring of 1946, over 4000 of the pig-like varmints have journeyed to a happier hunting ground, either by shooting or baiting. Based on an unofficial estimate that one porcupine in his lifetime destroys same $6000 worth of timber, that's a tremendous saving of sawlogs for the company's mill at Klickitat, Wash.

"It has cost $1.50 per critter to rid our infested areas of porcupines. Average yearly cost is $500. We believe that we have reduced current damage to our young growth to less than 10 percent from a previous high of 30 percent," states Lofgren.

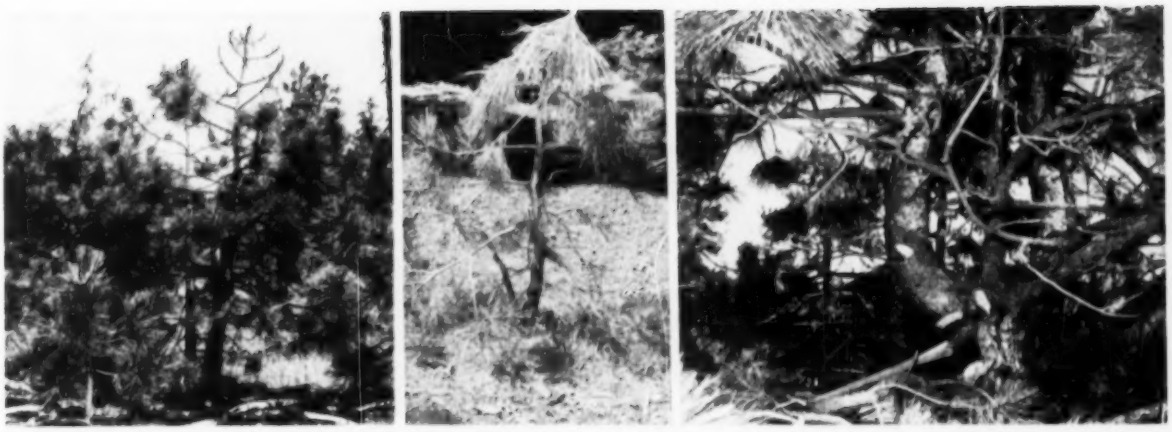
He attributes the rise in porcupine population to two factors. One is the perpetuation of the myth that porkies are good food for lost and starving hunters—"you can kill them with a club," it says here. But try to find a hunter who has eaten one! The porcupine is not protected thus—by law; it is merely an outmoded hunter's code!

The second factor is the decrease of natural predators that feast on porkies. Overzealous control programs have cut down on populations of the fisher, mountain lion, cougar, bear, fox, wolverine and coyote. So even though porkies beget only one young one per critter per year, they find their natural enemies less of a risk.

THE BATTLE AGAINST this growing tree menace is not confined to the 100,000-acre J. Neils tree farm in southwestern Washington. Throughout the ponderosa pine region of the western states foresters are up in arms against the perambulating pincushion, whose fondness for bark and tender cambium on young trees has brought him into disrepute.

Evidence of this concern was reflected in a "school" held early in November by the J. Neils Lumber Co. at its Draper Springs logging headquarters near Glenwood, Wash. Lofgren passed on his porky-baiting tricks to a group of 20 foresters from several timber companies, the State Division of Forestry, Bureau of Indian Affairs, Klamath Indian Agency, and Oregon State Board of Forestry.

Mention porcupines to usually calm Ernest Kolbe, chief forester for the 11-state Western Pine Association, and you'll get a pointed reaction. Kolbe is



TYPES OF DAMAGE caused by porcupine. Left: a group of young trees, all of which have been girdled at top. Center: seedling has been killed. Right: fork-top which develops as a result of girdling makes the top part of tree unusable for sawlogs.

intimately aware of the damage caused by this prickly invader, for he heads up for the eighth year the Northwest Forest Pest Action Committee, a cooperative regional group which fights insects, disease—and lately animals—that threaten timber crops.

"It has reached a point," declares Kolbe, "where porcupine damage must be rated right along with forest devastation caused by insects, diseases and forest fires." He has called upon hunters to shoot the pests—and to aid that effort he is collecting recipes for making the supposedly edible meat palatable.

LOFGREN GOT STARTED on his campaign when surveys conducted by the University of Washington and the Fish & Wildlife Service disclosed that 5000 acres of the J. Neils tree farm had been severely damaged by porcupines and 10,000 acres moderately damaged. Damage was first reported in 1938. The later survey showed that on individual plots, 29 percent of the total trees have been damaged, 8 percent by killing and 21 percent by crippling. Some 7 percent of 15-year old stands were damaged and 35 percent of the 30-year old stands.

Damage to trees caused by the porcupine is caused by his unusual feeding habits. Porky is primarily a grazier and prefers grass to trees. But in heavily grazed areas and in dry years the creature changes his diet. He eats and entirely consumes all the bark from small seedlings. He also relishes the tasty cambium of young trees from 4 to 16 inches in diameter—and climbs to the tops to get his serving, as high as 130 feet in isolated instances.

Grudgingly, foresters admit the por-

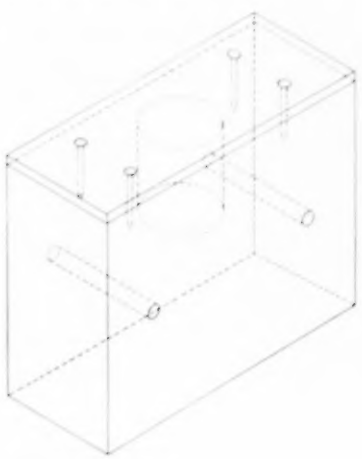
(Continued on page 123)

CLOSEUP OF GIRDLING action on tree, showing how cambium layer is destroyed. Porcupines are good tree climbers and go up as high as 130 feet for their food.

Bait Blocks

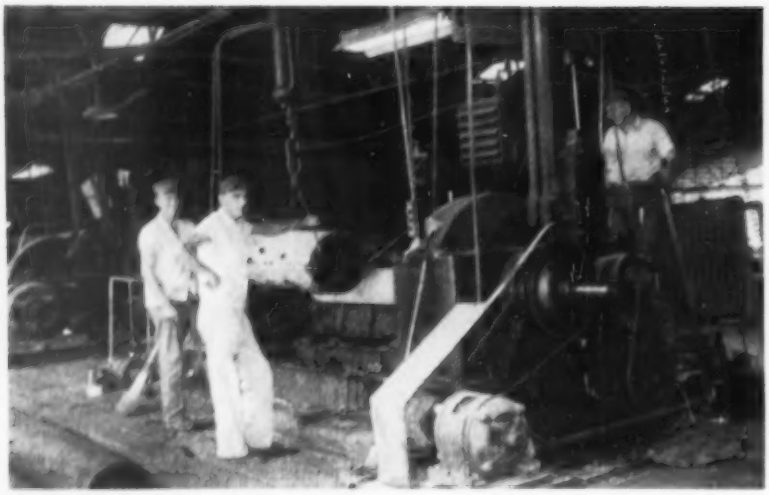
One ounce of strychnine to 13 ounces of granulated salt and 3 ounces of shortening or fat.

Tamp this preparation into a hole bored into a wood block made of a piece of 2x4 about 3 inches long. Cover hole with a piece of waterproof paper to prevent leaching. Place block in den, rest tree, abandoned building or similar area.



DETAILS OF constructing a bait block (left) from 2x4 piece. Hole is drilled in top, center. 2 nail holes are in side. Top cover is made of waterproof paper.

OLD BUILDINGS (right) are excellent place to use bait blocks. Porcupines frequent them regularly. Arrow points to dead porcupine.



TUPELO GUM GOES through Coe 56" lathe at Fernwood Industries, Inc., Fernwood, Mississippi.

Production Highlights

Customary line production is used. Logs are put through two Coe Mfg. Co. lathes (100-inch and 56-inch), one 19 section Coe dryer, Capital clippers, Merrick jointer, G. M. Diehl Co. splicers. Operation of veneer mill is 55 hours per week, but the dryer operates 24 hours per day and continues on a 7-day week as may be required.

Annual production of plywood is 12 million square feet on quarter inch basis operating on 112 hour week. It is put through a 50 x 98½ inch, 10 opening, Seimpelkamp hot press. The crew doubles up in applying the glue. A warning buzzer calls them to the press 10 seconds ahead of completion of the process.

Sizing is effected with two Mereen-Johnson Machine Co. equalizers which process a carload in three hours. Sanding is performed with a Sheboygan 3-drum endless bed sander. Plywood is made to order, and no stock panels are produced. Table top plywood is produced in substantial volume; also exterior plywood for overhead garage doors.

Specialities Pay Off

for this 75-year-old Mississippi firm making plywood, veneer

DOWN IN SOUTH Mississippi, a community bearing the name "Fernwood" survives after 75 years, with a longer payroll than the original "big" mill days.

L. E. RAMSAY, Vice Pres., Gen. Mgr. (L.) and W. R. WATKINS, JR., Vice Pres., Sec.

Established in 1880 as a log tram supplied longleaf sawmill, Fernwood Industries, Inc., at Fernwood, Miss., continued in that capacity until 1927. Originally it was Enochs Bros., then Fernwood Lbr. Co. Its top production with two shifts ranged from 200M to 250M feet per day. Located on the Illinois Central Railroad's main line, it had a straight haul into midwest territory. Mill equipment was sold off in 1928.

Production of veneer was started at McComb, two miles north, by the P. H. Enochs family and Lamar Ramsay, an operation extended into the plywood field in 1928. In 1932 both veneer and plywood operations were moved to Fernwood. In 1934-35, a small sawmilling operation was added at Fernwood, continuing to 1952. A pressure treating plant for poles, piling, cross ties and lumber was started in 1937.

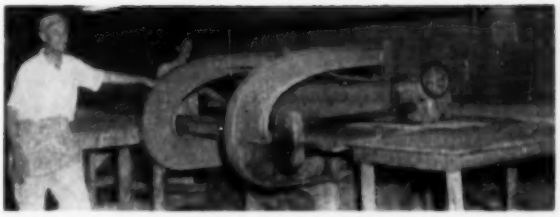
In 1932 the operations at Fernwood were joined by the Indianapolis Wirebound Box Co. which established the Mississippi Box & Crate Co. on an adjoining site, drawing its veneer from the established company.

With Mississippi Box & Crate's 400 and Fernwood Industries' 260 payroll, employment in the community now is well above the original "big" sawmill days.

The Fernwood, Columbia & Gulf Railroad, operating from Fernwood to Columbia, ranks among the most progressive short line carriers in the U. S. In an early conversion, the line bought three General Electric Diesel locomotives. Complete dieselization was effected with three more modern power units. The Bon Homme Hattiesburg Southern Railroad, an old-

SIGN OF PROGRESS in labor saving equipment is this Unit Crane and Shovel Co. mobile unit loading material into treating cars.

UNWANTED STRESSES in drying are prevented by slight cuts of cross fibers. Cross bands, cores are tenderized on Redmayne mach.



ABOVE: FINAL FINISHING of products is done on this Sheboygan three drum sander. Shown at TOP RIGHT: G. M. Diehl Co. modern splicing machine. This is one of two such machines in the Fernwood plant. Shown at BOTTOM RIGHT is Fernwood's pressure cylinder for Penta treatment, placed at left alongside the "Safety" warning sign. The creosote cylinder is enclosed at right of the cylinder.

time Tatum Lumber Co. log tram extending into southeast Mississippi from Hattiesburg, was acquired by the Fernwood interests about 18 months ago.

Logging its own timber rights on Blind River, in the deep swamps of St. James Parish, Fernwood enjoys a harvest of tupelo gum of about the same age, growing conditions, and variety, yielding a uniform product from which veneer made into plywood is duplicated from one year to the next.

Winter banking of logs is unnecessary in this all-weather marine (water borne) operation. The veneer mill has operated with only one or two days' log supply in the yard for over a year, and has lost no time. Logs are moved by barge 45 miles to the Illinois Central Railroad, and thence 75 miles to the mill on standard fixed stake railroad log cars. Loads are held with chains and load binders to permit full capacity with safety.

Production of high quality plywood is aided with a Redmayne Machinery Co., Wilmington, N. C., "tenderizer." Veneer sheets are passed through a machine having many spaced knives on a small diameter cylinder. Tupelo may have occasional cross fibers. The knives sever these, preventing distorting strains.

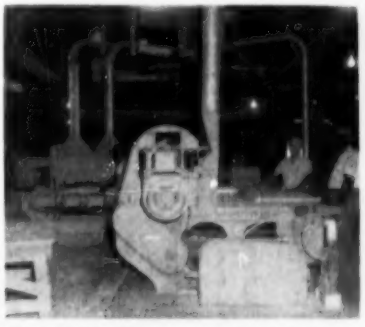
Effected ahead of the dryer, the miniature cuts are lost in drying. Since straight grain fibers are not touched, strength is not affected. This is used on cross bands and core sides. Products made at Fernwood include toilet seats, theatre seats, wheel ends for spools, and other specialty products. One product is a cutting (bread) board which has a southern beech facing with poplar lumber core. This is a replacement for boards formerly made from hard-to-get, high-priced hard maple. Also produced is a heavy plywood pallet for parachuting supplies.

Equipment in the fabrication shop includes an Onsrud Machine Co. routing machine, a Baxter D. Whitney & Sons automatic shaper and a hand shaper, a small band saw, and a Root Production Machinery Co. automatic boring machine.

Originally developed in the sawmill in cooperation with the Bell Machine Co. and transferred to the plywood plant is the experimental Bell electronic edge gluing lumber core press, with Girdler high frequency transmitter. This unit is braced with railroad iron. Other supplemental stiffeners were installed as development progressed. Recent use has been in making up of cross arms for a New Jersey Corporation. After being made up, these cross arms are sent to the treating plant for Penta pressure treatment.

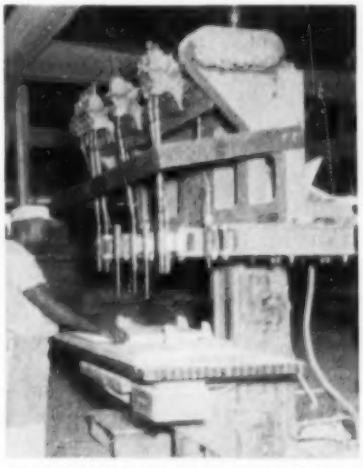
From Mississippi Box & Crate's hog, the outfeed pipe reaches a "Y" fork where a valve is located. One leg goes to the Fernwood fuel house, the

(Continued on page 130)



TRUE-SQUARING plywood on paired Mereen-Johnson equalizers is rapid, automatic process.

WHEEL ENDS for spools are made on this Baxter D. Whitney & Sons automatic shaper.



FAST DRILLING is effected with this automatic machine made by Root Production Co.

BREAD BOARD made of southern beech face, poplar core. Onsrud Mach. Co. routing mach.

LANDING CARVED OUT of mountainside on Forks Burn, Olympic Peninsula, Wash. Spar tree logs in 1100 ft. NW shovel, GM diesel, Berger air tongs loads on Spoelstra Bros. operation.

Salvage Nears Completion

on 1951 Forks Burn on the Olympic Peninsula in northern Washington

HOW HALF A BILLION board feet of timber was salvaged from the Forks Burn area on Washington's Olympic Peninsula from 1951 to 1955 is a chapter of modern logging history just now drawing to a close. It stands out as a prime example of cooperation by private industry and public agencies.

Just over 20% of salvageable volume was on private land; the Soleduck District of the Olympic National Forest had the rest.

Concerted effort by loggers and the U. S. Forest Service made the Forks area one of the busiest logging centers in the world during the last five years. Never before was so much timber offered for sale so rapidly or removed so quickly from such a centralized area. The salvage program attracted loggers from all over western Washington. At the height of the salvage, over a million feet of logs per day were loaded out, all on trucks. (See THE LUMBERMAN, Oct., 1953.)

By area, 33,000 acres of timber of all age classes, but largely virgin growth, were devastated by the fire, about half FS and half private, with 2300 acres of state land. Now the big job is to get all the scorched land back into production. This area, lying adjacent to the NW corner of the Olympic National Park, is some of the most productive timber-growing land to be found anywhere. Up to 1000 bd. ft. of new growth per acre per year is not unusual for the region, which has a rainfall of nearly 100" per year, excellent soil and favorable growing temperatures.

A new forest is getting a start through seeding, planting and natural regeneration, all of which will be augmented by brush killing where feasible.

OVER A MILLION seedlings were hand planted in 1954 over 1.2 million this year, about 2000 acres in all, mostly in fir. Where natural reproduction is coming in, the species mixture is about normal, i.e., fir, hemlock and in some places spruce.

But foresters reckon it will take five more years to get the area back into production. In 1956 some 1½ million seedlings will be planted, mostly paid for by K-V (Knutson-Vandenberg Act) funds collected along with stumpage.

This last spring over 1100 acres were aerially seeded, all by helicopter. Also, two 15-acre tracts were hand seeded, for chemical testing purposes. In one 250-acre seeding, the seeds were treated with tetramine. On another 150-acres were sown seeds with WRL-2, a systemic poison which for the first year makes the plants toxic to animals. The balance of the seeding was done 36 hours after the area was baited with 1080-treated wheat.

First indications are that the helicopter seeding was a great success. Stocking is very good—with up to 6000 germinated seeds per acre. Seeding was 100% Douglas fir, which gives the best results. Seeds were scattered at the rate of one pound, or 40,000 seeds per acre.

Dean Johnson of McMinnville, Ore., had the contract for the aerial work.

HELICOPTER SEEDING not only has proven effective in getting good, even reproduction but it also accounts for large dollar savings, costing but $12/A as against $25/A for handwork.

Brush spraying with helicopter, also

TYPICAL OF BURN area is this stretch of seared timber one year after fire, when road system had begun to penetrate back country so loggers could begin tremendous salvage program.

INTERNATIONAL DIESEL logger, owned by Brager Logging Co., Forks, Wn., with 9 ft. bunks, 8M capacity, at truck scaling station.

WASHINGTON IRON WORKS GM-diesel powered yarder owned by Spoelstra Bros. averages around 45,000 board feet of logs per day.

a Dean Johnson project, was started this year. Covering an initial 300 acres, chemicals sprayed were 24D and 245T in a diesel oil carrier. Dead alder and other weed growth will release young conifer growth from beneath and make hand planting feasible.

Here is the scoreboard on logs removed from the Soleduck Ranger District of the Olympic National Forest (which has an annual allowable cut of only 51 million bd. ft.) for the last five years. Nearly $6,000,000 in stumpage was involved.

1951– 58 million bd. ft.
1952– 92 "
1953–189 "
1954–185 "
1955–180 " (estimated)

The major participants in the burn salvage include:

- National Logging Co. Removed 75 MM bd. ft. and has finished salvage.
- Peninsula Plywood Co. Finished up salvage and returning to a green sale in effect at the time of the fire. Took out 71 MM as of late summer and had 16 MM to go.
- Rayonier, Inc. Biggest operator in the burn, took out 195,000,000 board feet in all and late this year was still cleaning up some patches of SF as well as company owned timber.
- Fibreboard Products, Inc., Sol Duc Logging Div. Back on green sales after logging 19 MM on burn.
- Albion Creek Logging Co. Logged 59 MM.
- Walt Kelly, independent logger, cut 23 MM and was finishing up 15 MM this year.
- Allen Logging Co. Removed 32 MM.
- Standard Logging Co. Removed 50 MM.
- Joe Cecil and Brad Fox of Port Angeles also removed substantial volumes.

SITKA SPRUCE plantation of 80 acres was logged, slash burned, planted in 1948, missed 1951 fire; has trees up to 25-30 feet high.

MAIN SPECIES involved were western hemlock, Douglas fir and Sitka spruce; minor species were silver fir and western red cedar. Trees were attacked by the flames in various degrees but in no cases was any timber expected to be any good after 1955. Never before has so much timber been put up for sale so quickly.

"SHOWCASE" EXAMPLE of artificially reforested areas in Forks Burn is Sitka spruce plantation 7 yrs. old; has trees up to 30 feet.

While timber cut on the Olympic National Forest is settling down to normal, there will be an increase in annual allowable cuts on at least one district. Total cut for the forest runs at 300 million per year.

Large green sales are being planned for advertisement within the next year. An 18 million board foot sale was to

(Continued on page 125)

Photo: Port Angeles Evening News

CLOUD LOGGING at top of "C" road in Forks Burn. Logs are high leaded to narrow crowded landing by contractor Harry Sackett.

HELICOPTER SEEDING is lower in cost than hand seeding, has provided good number of established seedlings. Dean Johnson helicopter.

MAJOR CHARLES S. COWAN, Wash. Forest Fire Assoc. (R.) receives recognition from Wash. State For. Conf. for his long years of service as secretary. NORM JACOBSON, Tacoma, Wash. makes the presentation.

LUNCHEON WAS GIVEN in San Francisco in Nov. in honor of Florencio Tamesis, retired director of Forestry, Philippine Republic and now gen. mgr., Naspit Lumber Co., Inc. From L.: ROY NASH, who organized College of Forestry of Philippines; TAMESIS; E. B. COPELAND, Dean Emeritus, College of Agriculture of the Philippines; HARRY J. JORDAN, gen. mgr., Jordan Pac. Co. Luncheon was arranged by Jordan, attended by other forestry people from area.

SPECIAL CEREMONY was held in Portland, Ore. in Oct. to recognize Howard-Cooper Corp. for selling 500 International TD-24's. Gold-inscribed trophy was presented. From L.: FRANK PARKER, Howard-Cooper; P. V. MOULDER, Exec. V-P, International Harvester Co.; H. T. REISHUS, V-P, I-H Co.; FRANK COOPER, H-C.

GUY HARTLE (L.) Div. Mgr. of the Malarkey plywood plant at Lyons, Oregon, which opened officially in November, shows ex-Oregon Governor CHARLES SPRAGUE (now publisher of *The Oregon Statesman*, Salem) (Center) and Oregon Congressman WALTER NORBLAD (R.) one of prime peeler logs processed at this plant.

REDWOOD REGION Conservation Council's Education & Training Committee sponsored a second conference on the role of schools in forestry, logging and lumbering education at Ukiah, Calif. in Oct. L. to R.: G. B. MCLEOD, Hammond Lbr. Co.; J. HAROLD ROBINSON, Willits Redwood Prod.; C. RUSSELL JOHNSON, Union Lbr. Co.

MALLET AND FROE, symbols of the shake-maker's art, are used by shingle industry officials to signalize entry of Red Cedar Shingle Bureau in field of handsplit shakes. From L.: Bureau Mgr. VIRGIL G. PETERSON; A. B. FERGUSON, pres., Hand-Split Red Cedar Shake Assoc.; R. D. MACKIE, vice-pres., Red Cedar Shingle Bureau.

WESTERN FOREST Industries' "ski jump" chip-loading apparatus at Chemainus, B. C. Conveyor takes chips to the outfeed end.

B. C. FOREST PRODUCTS, Cowichan Div., Youbou, B. C., uses this single-load chip bunker that drops entire load at once in trailer.

Loading Devices Are Used

to handle pulp chips produced in numerous British Columbia mills

FROM SCORES of mills on the mainland and on Vancouver Island, British Columbia, chips are flowing to pulp mills in increasing volume. These chips represent the extra profit in the business and, in a few cases, the difference between profit and loss.

The rising production of chips has revolutionized not only the lumber industry in British Columbia, but the pulp industry, too, because the hydraulic barker and the whole log chipper have enabled chemical pulp mills to save from 15 to 25 percent of their wood requirements.

William McMahan, Canadian Forest Products, which operates hydraulic barkers and chippers at its sawmills and also produces semi-bleached sulphate pulp as well as plywood and hardboard, has estimated that some 1,200,000 units of chips will be produced in British Columbia this year—the equivalent of 500 million feet of logs. "In 1955", said McMahan, "we will do just as much with 1.9 billion feet of logs as we could have done with 2.5 billion feet twenty years ago, before we had the log barker."

The material that used to be burned and lost to industry is now going into chips. A year ago the Youbou mill of B.C. Forest Products built the first whole log barker (Hansel) on a pontoon float. The same story, with variations, is repeated at almost every other large mill in British Columbia's coastal district.

AT YOUBOU, for instance, a new type of bunker has been devised holding one truck-trailer load of chips, with walls sloping outward to prevent bridging and binding. Trap doors activated by electric motor drop the load into the waiting trailer in a minimum of time.

Since many of the mills are a considerable distance from pulp mills, different techniques have had to be devised to transport the chips economically and expeditiously. This has encouraged engineers and mechanics to use their ingenuity, applying a basic idea to different local conditions. (THE LUMBERMAN April 1955)

At Honeymoon Bay, across Cowichan Lake from Youbou, Western Forest Industries, allied with Rayonier and Alaska Pine & Cellulose, has a new oscillating-arm Hansel whole log hydraulic barker which cleans logs for a couple of Norman chippers (66 inches and 54 inches) which produce 300 units daily. Chips are fed by chain and bucket conveyor into a hopper outside the mill buildings. Trucks back under the hopper and the driver regulates the flow of chips from a spout above by means of an electric button at the end of a control wire. By looking into a mirror he can see the reflection of his load gradually rising and can move his truck back and forth to even the load.

Chips are trucked by independent contractor to Chemainus about 35 miles from the mill, on the east coast of the Island, where Western Forest Industries has its own barge-loading setup consisting of an apparatus resembling a ski-jump.

TRUCK AND TRAILER move into position above a hopper built at the top of a bank overlooking the wharf. The trailer is detached from the truck and lifted by electric hoist and dumped. The contents fall onto the infeed end of a conveyor belt which travels to the end of the "ski jump" and are then dropped by funnel into

HILLCREST LBR. CO., Vanc. Isl., loads chips into RR cars by means of cable between two tracks. Chips are pneumatically conveyed.

WEST. FOR. IND. at Honeymoon Bay has chip bunker regulated by truck driver, using mirrors and buttons to regulate the chip flow.

BUNKER AT CROFTON loads chips from Mesachie Bay into barges. Chips are conveyed pneumatically into tower, dropped in barges.

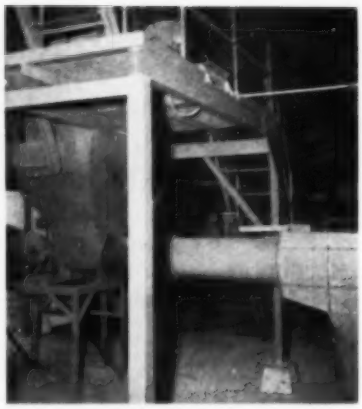
the waiting barges. The trailer load can be loaded onto a barge in 12 minutes.

One of the newest chip handling installations is at Hillcrest Lumber Co., engineered by Pneumatic Conveyors, Ltd., Vancouver. The company's sawmill is on Mesachie Lake. A Sumner chipper and screen are used. Slabs which can be converted into pulp chips are taken manually from the refuse conveyor and returned to another conveyor leading to the chipper, the rejects continuing to a burner.

After screening, chips are conveyed by chain belt to a surge bin which serves a pneumatic feeder, capable of handling long shims, etc., should they pass through the screen end-wise. Chips are drawn by suction from the bin and piped to a loading platform located some distance from the chipper building over two sets of railroad tracks. Interchangeable pipes deliver the chips to one track or the other so that either Douglas fir or hemlock may be loaded into the waiting open-top box cars.

A TWO-HORSEPOWER motor located between the tracks operates a cable which slowly shuttles the car being loaded back and forth along the track while the chips are being fed from above, thus accomplishing automatically even loading. When the car is filled, an automatic device flashes a signal in the chipper building and an attendant turns off the power. The car is then switched to the spur line and finally to the Crofton line of the Esquimalt & Nanaimo Railway.

The loaded cars—the mill produces about 40 units of chips daily—are then hauled to Crofton, where Hillcrest operates Osborne Bay Wharfing Co. as a subsidiary. Here a tower-like building houses the Pneumatic Conveyor mechanism that draws the chips



SECTION OF PNEUMATIC conveyor feeder in Hillcrest Lbr. Co. mill. It can handle long shims, etc., passing through screen end-wise.

from the cars by suction into a bin from which they are funneled into barges towed to the Crown Zellerbach pulp mill at Port Townsend, Wash. This is one of the few instances where chips are transported by rail in the Northwest—the only one of its kind in British Columbia.

Power for the pneumatic system at the Hillcrest mill is provided by a 50 h.p. English Electric motor; for the suction apparatus at Osborne Bay a 75 h.p. Higgs (British-made) motor.

Saw Filer Recalls 68 Years of Progress

EDITOR'S NOTE: The following "look back" was contributed by G. C. Knapp, formerly saw filer with the California Barrel Co., Arcata, California. He is now close to 85 years of age.

• I have often wondered who, among the thousands of saw filers along the Pacific Coast, has the longest term of active saw filing. I began at age 16 and finally dropped in the harness just sixty-eight years later. The first two years of my life as a sawmill worker, I fed stickers in the planing room, but after getting started at saw filing, the stickers no longer interested me.

In 1886 and for a number of years prior to that, there was just one man in Humboldt County who could hammer (tension) a circular saw. He had come from the eastern portion of the U. S. and established a saw shop in Eureka. There were not more than seven or eight sawmills and an equal number of shingle mills in Humboldt County. Mr. S. S. Lovering, the above-mentioned sawsmith, used to visit the various mills periodically when called.

He brought along his big anvil, hammers and straight edgers. No such tools were owned by any sawmill owner at that time. Finally anvils began to appear in most of the mills. Finally a Frenchman showed up who was a first class saw hammerer and could demonstrate his ability. He took on pupils at $150.00 per head and toured the country until he had contacted nearly all of the saw filers. He guaranteed satisfaction or no charge for tuition.

Some paid the fee promptly and went ahead making good at saw-hammering, while others got what they wanted but didn't pay for it. Later I got my first lesson in saw hammering. One half hour of standing beside me at the anvil was all the bother I gave my teacher; fee $100.

At Scotia, Calif., I did my apprentice work at saw hammering, after four years of actual experience in filing shingle saws. I was doing my saw hammering practicing in the big sawmill at Scotia. Scotia had just two sawing plants, the sawmill and a five-machine shingle, both considered large at that time.

A second filer job was offered me. I made good on that job, which was the beginning of over thirty years of experience with the Ole Hanson shingle machine. By the time I had reached age 34 I was considered by all shingle mill owners to be the top shingle saw filer in Humboldt County. By the time I had reached age 40 I had turned out twenty-four shingle saw filers who were able to make good!

At the beginning of World War No. 1 the shingle business began to slump. By the time of U. S. entrance in that war, most shingle mills were closed for lack of manpower. I found myself out of a job, but landed one with the California Barrel Co. of Arcata, Calif. That was my lucky day, for I spent the last 36 years of my working life there. I have nothing but high admiration for this institution that for years was the main lifeblood of Arcata.

When I first saw Eureka and Humboldt Bay in the late summer of 1875—we came here from Iowa—logging operations were on the fringe of the eastern shore of Humboldt Bay. All of the old growth redwood directly east of Humboldt Bay has been harvested. Redwood, also red fir, growths follow back up the creek and rivers for a long distance from the coast, but the rate of harvesting is now terrific.

In my opinion, the new growth, in any area, is not one-tenth the volume of the cutting. It is also low in quality, being at least 30 percent bark and soft sap wood.

In 1955 there is a mushroom growth of sawmills in Humboldt and Mendocino counties. Occasionally one can see an old rusting abandoned wreck of a shingle mill. Fifty years ago there were more shingle mills than sawmills in Humboldt County. Today half of the dairy land in the lower Mad River area has been bought up and converted into sawmill sites and lumber yards.

SPEAKERS AT WASHINGTON State Forestry Conf. in Seattle, Nov. 4, included (L. to R.): Prof. GEORGE STENZEL, U. of W. College of Forestry; GEORGE STAEBLER, USFS; L. T. WEBSTER, Wash. State Supervisor of Forestry; Dr. DON CLARK, Institute of Forest Products; BRUCE FERGUSON, Weyerhaeuser Tbr. Co. and Prof. DAVID THOMAS, Univ. of Washington.

SMALL TREE FARM problems: R. F. SMITH (L.), Mason, Bruce & Girard. Genetics: Dr. J. W. DUFFIELD (R.), For. Ind. Tree Nurs.

Alder Assumes Importance

and is discussed by foresters at 34th Washington State Forestry Conference

RED ALDER, ONCE a weed species like western hemlock, now commands a much higher stumpage price and is rapidly assuming major economic importance. Delegates to the 34th annual Washington State Forestry Conference, held in Seattle, Wash., Nov. 4, heard this report on new utilization trends.

Other important topics discussed included progress in state forestry, research needs, genetics, tree farm insurance and management of small tree farms. Gordon D. Marckworth, Dean, College of Forestry, University of Washington, presided at the conference, attended by over 200.

After 27 years as secretary-treasurer, Charles S. Cowan stepped down from office and turned the books over to William H. Larson, chief fire warden, Washington Forest Fire Assn.

RAPID RISE OF ALDER to a place of prominence in western Washington timber economy was discussed by a panel moderated by Dr. Don Clark of the Institute of Forest Products. He said a year ago landowners looked around for people to haul their alder away to get rid of it; now stumpage has gone as high as $7.00 per M.

Bruce Ferguson, Weyerhaeuser Timber Co., Longview, Wash., told how alder stimulated building of his company's new neutral sulfite semichemical (NSSC) plant which produces 200 tons per day of 9-point corrugating medium. Longview was chosen as the site for this important mill because of the large tributary supply of alder and other hardwoods. Alder's medium short and stiff fibre results in the high crush strength desirable in corrugating material. Alder cooked by the NSSC method yields 60 to 80 percent of the original volume of the wood, a much greater yield than cooking by other more common methods.

In addition, the company's lumber division at Longview uses alder logs to make lumber and panelling. The lumber is cut by a double-cutting band headrig. No. 3 and better grades are sold as lumber and the rest is chipped for pulp.

Lumber is kiln dried on an approximately seven day schedule. Lumber to be shipped to furniture manufacturers is then surfaced on two sides, double-end trimmed. The most handsome pieces are sold for interior panelling and are competitive with other fine hardwoods.

Ferguson stated that because this alder procurement is fairly new, loggers are using equipment not specifically designed for alder logging. He said future needs include light, mobile machines that can be operated with a small crew.

Panel member Prof. George Stenzel, U. of Wash. College of Forestry, predicted that brush will be a problem by retarding natural regeneration of alder and that there will be a cost factor to consider in getting the alder started. Forest Service Researcher Norman Worthington said he found alder reproduction varies from good to bad. He stated that since alder occurs mostly in mixed stands it will have to be managed in mixed stands. An industry forester commented that small contractors have been doing a good job of logging on a partial cutting thinning and that such thinning may be beneficial. From limited observations, foresters reported that alder grows at the rate of 400 bd. ft. per acre in pure unmanaged stands and at a much higher rate on small, managed tracts, up to 675 bd. ft. on one British Columbia tract.

Prof. David Thomas, U. of Wash., observed that epicormic branches resulting from opening up of a stand generally do not lower quality of lumber.

Prof. Stanley Gessel, U. of W., said that alder requires a good soil; also it helps build up the soil by releasing nitrogen.

Best rotation age was believed to be between 35 and 45 years.

NEW SEC.-TREAS. WILLIAM H. LARSON (L). At right, CHARLES BYRNE, who outlined details of insurance costs on standing timber.

HIGHLIGHTS OF STATE Supervisor of Forestry L. T. ("Mike") Webster's report on the progress in state forestry included:

- The 1955 fire season in Washington to Nov. 1 produced 665 fires and a total of 1,253 burned acres, on the 12½ million acres protected by the state division of forestry. This record is nearly as good as that of 1954, the best year ever, when 537 fires burned 1,125 acres.

(Continued on page 129)

PORTABLE LIGHT table developed by U. S. Forest Service is an aid in making stereopticon study of color photos on ground to check accuracy of type maps. (U. S. Forest Service photos.)

Color Photos Aid Salvage

of beetle-killed Douglas fir timber as mapping technique is developed

J. F. WEAR
and
J. R. DILWORTH

AERIAL COLOR photography has been successfully added to the forester's tools. For years foresters have used aerial black-and-white photos for timber typing, volume estimating, road locating, and much else. Now aerial color photos are being used to detect and evaluate insect-killed timber. Color photos promise to be useful for many other forestry purposes.

Mr. Wear is Research Forester, U. S. Forest Service, Portland, Ore., and Mr. Dilworth is Professor of Forest Management, Oregon State College, Corvallis, Ore.

JOHN WEAR, U. S. F. S., carries portable light table and covered color transparencies.

In the 1920's entomologists recognized the possibilities of aerial photography for detecting insect-killed trees. Paul Keen and John Miller of the then U. S. Bureau of Entomology took some aerial photographs of pine forests containing beetle-killed trees. The dead trees showed on the photos, but the films, cameras, and art of photogrammetry were too primitive for this specialized purpose.

After World War II, with vastly improved films, cameras, and photogrammetric techniques, a new effort was made. A special project was undertaken by the Pacific Northwest Forest and Range Experiment Station, U. S. Forest Service, to evaluate insect outbreaks by aerial photo sampling. Considerable success has been achieved.

Less than ten years ago, photogrammetrists were saying that high quality color photos could not be taken from altitudes more than 5,000 feet above sea level. Today high quality color photos are being taken from altitudes of more than 11,000 feet, thus greatly extending the usefulness of color photography.

WILL COLOR REPLACE panchromatic photography? Not likely, for in most forestry and mapping work a print rather than a transparency is needed. Although suitable color prints can be made, they still are too expensive for general use.

What are the advantages of color photography? The main use of the color transparency is for photo interpretation. Natural appearance of forests on color transparencies make them ideal for identifying tree species, forest types, and standing dead trees. The human eye is much more sensitive to different colors than to different shades of gray.

Color photography is easier to interpret than parchromatic, and the results are more consistent. On color transparencies a maple tree looks like a maple tree. On panchromatic photos the appearance of a maple tree is affected by the season of year and time of day the photos are taken and by the processing of the film and print.

Black-and-white prints can be made from color transparencies. Are they as good as prints from high quality panchromatic negatives? No, but they do give a very usable print.

Color aerial transparencies have disadvantages. They cost more. They are more exacting in the taking and processing. When stereoscopic study is desired, a light-table is needed. In the woods this is unhandy, although a compact and portable light-table has been designed and is in use in this region. Duplicate color transparencies are not readily made, hence the originals must be used in the woods. To protect them, it is necessary to spray them with clear plastic or to enclose them in a transparent envelope.

TAKING HIGH QUALITY color photographs requires a skilled and experienced photographer and pilot. Careful processing under controlled conditions by competent technicians also is essential. These are not jobs for the amateur.

For specialized purposes, aerial color photography is reasonable in cost. Work with color in the Pacific Northwest has consisted primarily of taking strips of photos of long, narrow, ground plots. Costs of photographing widely scattered plots of this kind at a scale of 1:7920 have been computed at $45.00 per square mile for colored transparencies and $35.00 per square mile for black-and-white prints from panchromatic film.

On a per acre basis, the color costs about 7 cents per acre compared to 5.5 cents for panchromatic. These figures do not allow for profit, risk, and overhead. Costs of commercial aerial photography in color cannot be accurately estimated until this photo method is more fully developed and the aerial survey companies of the

region have built up more experience with it.

What does all this have to do with salvage? On the Millocoma Tree Farm in southwestern Oregon, Weyerhaeuser Timber Company has been salvaging at a rate of about one dead tree for each five trees harvested. In 1954 a 20,000-acre tract with heavy beetle-kill was photographed in color at a scale of 1:7920. Company foresters found that color photos greatly aided in detecting the dead trees and in locating roads and logging settings to obtain maximum salvage.

THE FIRST FULL-SCALE practical application of color photos for evaluating tree mortality was to follow the trend of a Douglas-fir bark beetle outbreak that developed in 1951 in western Oregon and Washintgon. Seventy-five pilots were chosen at random. Late in the summer of 1952, test flights were made to determine the feasibility of photographing these plots. Difficulties developed. The photo crews had difficulty locating the plots. After the plots were located, the crews had difficulty staying on the plot center line. These tests showed that pinpointing large-scale photography is a specialized and exacting job. Althought the 1952 photography was unsuccessful, it provided enough experience so that in 1953 the selected plots were successfully photographed in color.

The aerial photo plots were established to provide a system for extending data on beetle-kill obtained in 1952 by aerial sketch mapping. A complete record for the duration of the outbreak was desired. The plots were re-photographed in 1954 and the increase in the number of beetle-killed trees was noted. This information showed whether the epidemic was continuing or slackening. To give some idea of the size of the project, over 1,000 color transparencies were taken and interpreted by the end of the 1954 season.

Questions sometimes arise as to the type of camera, airplane, and film that is used in a project of this kind. A Fairchild K-17B mapping camera, having a 12-inch focal length and taking a 9x9-inch negative was used. The film was a high-contrast Kodak Ektachrome aero film. The photography was taken at a scale of approximately 1:7920 from a Cessna 170-B airplane. The exposed film was processed according to the manufacturer's instructions by a commercial photographic laboratory.

COMMENTS ON the interpretation of these colored photos may be of interest. When tree counts are made on aerial photographs, as was done in this study, there is always the question of how many trees are missed. This question cannot be ignored by the interpreter. When the determina-

(Continued on page 132)

PRESENCE OF DEADLY Douglas fir bark beetle is readily indicated by the light colored patches shown in this photo. The forested hillside is on Mary's Peak, near Corvallis, Ore.

TAKEN FROM SAME viewpoint as the picture above, this view shows the logging salvage underway and largely completed. The photos aid in road location and salvage logging planning.

THIS IS A SCHEMATIC layout of one of the two similar WASHO test loops constructed near Malad, Idaho. Loop consists of two double lanes, four lanes in all. This south loop was tested with tandem-axle loads of 40,000 lbs. in the outer lanes and with tandem-axle loads of 32,000 lbs. in the inside lanes. The small numbers in the lettered sections refer to, first: overall pavement thickness of the pavement structure—surface, base and subbase (in inches); second—thickness of asphalt concrete surfacing material; third—refers to the axle load, 32,000 or 40,000 lbs.

Thicker Pavement Needed

WASHO Test Shows That Heavy Loads Possible on Adequate Surface, Subbase

THE LONG-AWAITED "WASHO" report has been completed and is now being studied by highway engineers, highway users and truck and trailer manufacturers all over the country. What effect will the WASHO report have on the hauling of logs and other forest products over public highways?

To get the answer, THE LUMBERMAN went to the Pacific Northwest Loggers Association in Seattle and discussed the WASHO report with E. T. Clark, secretary-manager, who personally inspected the WASHO test site, and Kenneth M. Murdock, asst. sec.-mgr. PNLA is one of the forest industries organizations which is taking an active part in the study of highway problems as pertains specifically to loggers; Pacific Logging Congress is another. Murdock has been closely associated with this study through his work as chairman of the local committee (for the state of Washington) of the Natural Resource Roads Committee, established in 1947 by the Pacific Logging Congress. (There are local committees, similar to the Washington state committee, set up in other western states.)

Several studies have been conducted in the state of Washington that are of vital concern to loggers all over the west. A brief mention of these will help give the reader of the continuity involved from one study to the next:

In 1952, the Washington State Council for Highway Research (developed to design ways and means for solving highway problems) published Vols. 1 & 2 of **"A Report on Highway Classification.** It showed the volume of traffic on highways of the state and also broke down the volume figures to reveal traffic by individual industries.

In June 1948, Dean Gordon D. Marckworth and Prof. B. L. Orell under auspices of the Institute of Forest Products published a paper entitled **"A Survey of Log Hauls on Washington State Highways".** (It was prepared as a report for the Natural Resource Roads Committee, Pacific Logging Congress.) The paper showed "how many board feet of logs will be transported on what highways, from where to where, during the next 10 years."

A highway **maintenance cost study,** planned by the Washington state highway department, will benefit from the WASHO findings.

Publication of the WASHO report now clears the way for the publication of a **second study by the Institute of Forest Products** for the Washington State Council for Highway Research. This study deals with comparative costs of trucking logs by various size vehicles.

Interpretation of these published and to-be-published reports and studies will be closely tied in the results of the WASHO test.

Cooperating Agencies

Eleven western states and Alaska contributed $486,000 for the WASHO tests. The U.S. Bureau of Public Roads paid in $282,000. Several truck manufacturers loaned vehicles: Kenworth, Dodge, Diamond T, General Motors, International, Mack and White. Trailers were loaned by various companies including Fruehauf, Dorsey, Humes, Peerless, Pike Steel Products Co., Trailmobile and Utility. Twenty-three petroleum firms donated products valued at $24,000. Many other public and private organizations conducted separate, related tests and helped in a number of ways. The total cost amounted to an estimated $890,000.

Report of Personal Visit

Following E. T. Clark's trip to the WASHO test, he reported.

"The project is located about 11 miles south of Malad, Idaho, and 75 miles south of Pocatello on Highway U. S. 191 leading to Ogden, Utah. The Test Road has two separate loops with tangents 1,900 feet long and 24 feet wide. The tangents in each loop are connected by superelevated turnarounds designed for 30 miles per hour speed.

"The pavement in each tangent is varied in thickness. On one tangent in each loop, the top six inches are made up of two inches of asphaltic concrete over four inches of three-quarter granular base material. In the other tangent of each test loop, the top six inches consist of four inches of asphaltic concrete over two inches of granular base material. Under these six inches of combination asphaltic concrete and base, there is a variable thickness of subbase material. Thus, each of the four 1,900-foot tangents is broken down into five 300-foot test sections with 100-foot transitions between them.

"One of these 300-foot sections has a subbase of 2-inch down granular material 16 inches thick. The subbase of the next 300-foot section is 12 inches thick; the next, 8 inches; the next, 4 inches; and the remaining section is laid directly on the subgrade soil. Thus the total thickness of the pavement over the subgrade soil varies from 22 to six inches on each of the four test tangents. The turnarounds are all 22 inches thick.

"All test vehicles were tractor-semitrailers loaded to an exact weight with concrete blocks. On the north loop, single axle combinations were used with 18,000-lb. axle loads on the inside lane and 22,400-lb. axle loads on the outside lane. On the south loop, tandem axle combinations were used with 32,000-lb. tandem axle loads on the inside lane and 40,000-lb. tandem axle loads on the outside lane.

"The trucks were operated until a section of the road began to break up and then the operation would be closed down until the section could be repaired. Exacting engineering data was constantly collected and filed for the final reports on the project."

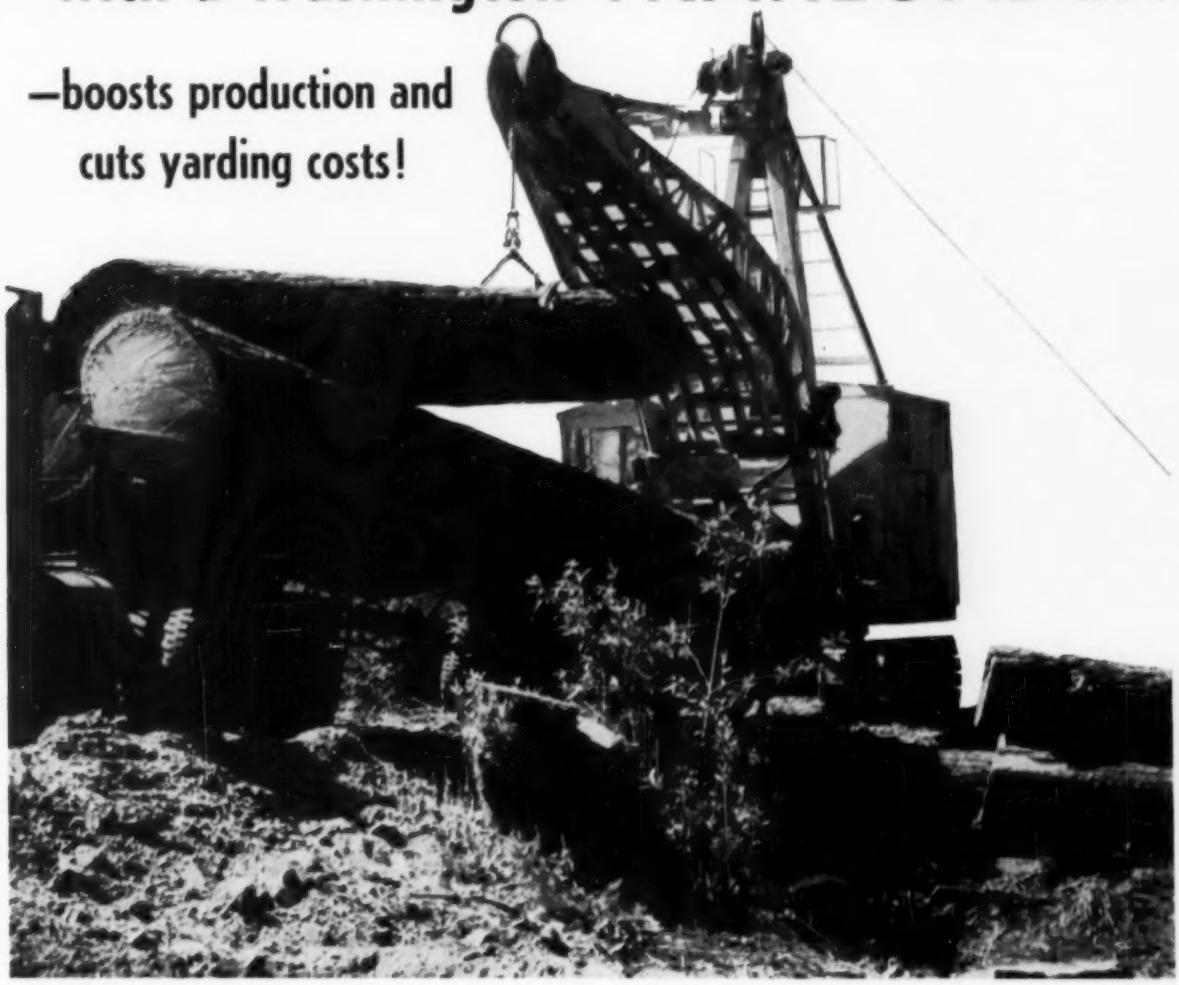
Commenting on the completed test, Clark stated, "The final comprehensive WASHO report is based upon 476,000 truck trips and 639,000 miles of travel. Some of the findings of interest to haulers of forest products include the following:

• "The outside edge of pavement showed much more failure than the inside wheel lanes. This is due to greater deflection of the outer edge of the pavement and to water getting under it. This can be prevented by ex-

(Continued on page 92)

Menasha Plywood "keeps close to the logs" —with a Washington TRAKLOADER

—boosts production and cuts yarding costs!



"With a 3-man crew and moving three to six times daily, our Washington Trakloader keeps up a daily loading average of 150,000 bd. ft., handling fir logs running up to 5,000 feet," says Warren Dick, logging manager for Menasha Plywood Corporation of North Bend, Oregon. "Under its own power our Trakloader travels almost one-half mile per day, keeping our average skidding distance to a minimum. With our Trakloader, we can keep close to the logs instead of yarding the logs to the loader."

Equipped with electric guyline drums, Menasha's Trakloader can be set up to handle the big loading and yarding jobs in a matter of minutes.

Throughout the big timber areas of the western states and British Columbia, the Washington Trakloader is bringing out more logs, faster and cheaper. Yarding, loading and traveling under its own power, the big machines are providing progressive loggers with extra loads per day, smaller crews, shorter yarding distances, less log damage and lower operational and maintenance costs.

Many times the versatile and highly mobile Trakloader has put the "profit" into hard-to-get-at logging operations.

There are now four models of the Washington Trakloader for every size and type of logging operation. Ask your local Washington dealer or write direct to the factory for complete specifications on the Trakloader and other Washington equipment for modern low cost logging.

WASHINGTON IRON WORKS

1500 Sixth Avenue South, Seattle 4, Washington ELiott 1292

WASHINGTON IRON WORKS

Thicker Pavement Needed

(Continued from page 90)

tending the pavement over the shoulders.

- The use of four inch surface is imperative. The performance of the 4-inch surfacing proved far superior to the equivalent section with 2-inch surfacing.
- The overall structure thickness requires a minimum of 10 inches consisting of four inches of surface and a base of at least six inches of gravel plus paving of the shoulders for the heavier service. With two inch surface, the requirement must be 14 inch minimum consisting of 2-inch surface on 12 inches of gravel.
- The test showed sharp increase in deflections of pavement after spring thaws and when moisture content of the soil underneath is above 22%.
- The effect of axle weight seems to show that 18,000 lb. single axle loads caused distress over a greater area but the 32,000 tandem caused greater and deeper distress."

In summarizing, Clark said, "There is little difference in the effect of increasing the single axle loading from present 18,000 lbs. to 22,400 lbs. and the present 32,000 lbs. tandem axle to 40,000 lbs. This seems to justify the tolerance laws of our Pacific coast states which allow overweights for the occasional loads. In making its press release, the WASHO committee urges thicker road surfacing and paved shoulders. It said a heavy tandem-axle load does no more damage than a lighter single-axle load. Frosts and spring thaws will damage pavement, no matter how thick it is."

Regarding the thickness of the asphaltic concrete surfacing, the WASHO report states: "Perhaps two of the most important findings of the test, insofar as the use of that may be made of them in design of new highways, are those dealing with the benefits ascribed to the thicker surfacing and to the paved shoulders. Regardless of the axle load, overall pavement structure thickness, or conditions of the subsurface materials, the performance of those test sections with 4-inch surfacing proved far superior to that of equivalent sections with 2-inch surfacing. This is clearly demonstrated by comparison of the total areas of distress in the 4-inch tangents with those in the 2-inch tangents at the end of the traffic test period."

And further, "The superior behavior of the 4-inch surfaced sections was due to the additional slab strength of the thicker surfacing."

Effect of Shoulders

The WASHO report shows that the engineers were well pleased with the results of shoulder pavement. It states: "It is believed that the beneficial effect of paved shoulders is brought about partly by their waterproofing ability and partly by the fact that, with paved shoulders, the conditions of interior rather than edge loading always apply."

Effect of Axle Weight

The two main methods for measuring the effect of axle weight on the condition of the surfacing were (1) relative areas of "distress," i. e., cracking or conditions requiring patching; (2) degree of deflection, which is the amount of bending of the surface of the road under the axle loading. (A number of these surface deflections caused by repetitions of axle loading would result in distress of both surface and subbase if standard of construction was not adequate.)

Report says: "Observations of the test pavement performance indicate that the heavier loads caused more distress than the lighter ones. Considering the experimental pavement as a whole, relative areas of distress for the single-axle loads were as follows:

Axle Load	Total Distress Area	Distribution According to Thickness of Surfacing 4"	2"
18,000 lbs. (single)	8,200 sq. ft	12%	88%
22,400 lbs. (single)	9,330 sq. ft.	19%	81%
32,000 lbs. (tandem)	7,818 sq. ft.	20%	80%
40,000 lbs. (tandem)	11,580 sq. ft.	22%	78%

One of the report's tables shows that while the 18-,000-lb. single axle loads caused distress over a larger area than the 32,000-lb. tandem axle, the latter caused a greater area of severe distress.

Effect of Weather

Questions of temperature were also considered. "Measurements show a consistent relationship between the temperature of the asphaltic pavement and the magnitude of deflection. While the deflections were obviously influenced by the moisture content in the basement soil, it is also evident that they tend to decrease with a drop in the pavement temperature. The question of damage, however, is more complex. An asphaltic-concrete pavement surfacing can withstand considerable deflection while the surface is warm but may develop cracks or signs of distress under small deflections when it is cold."

Conclusions

The WASHO test, for one thing, does not delve into the economic factors of road construction. Many interpretations of one kind or another will be made from the report; however this precautionary note is sounded: "Any use of the values or relationship reported should be made only with full consideration for the type of pavement, type of soil, frequency and magnitude of load applications, climatic conditions, and the length of time which any contemplated highway project is expected to endure. With due allowance for such local conditions certain relationships may be used elsewhere with confidence."

The report is statistical in nature and does not present recommendations as to changes in present laws. However, the test brings out the fact that 32,000-lb. tandem-axle loadings showed no damage and that the 40,000-lb. tandem-axle loadings showed only minor damage, and that is for the full duration of the test. That would indicate that 4" surfacing on a 6" base (10" total) would be reasonably serviceable; also, that 4" surfacing on a 10" base (14" total) would be a higher construction standard than present-day loadings would require. The experience in single-axle loadings shows even less breakdown.

A greatly enlarged research program on road construction to take place in Illinois is now being planned by the AASHO (American Association of State Highway Officials). It will be supervised by the Highway Research Board. Not only will asphaltic concrete be studied, but reinforced concrete and bridges as well. The project will cost upwards of $10,000,000. The tests results and other information gained in the WASHO project in Idaho will be of great value in Illinois in the building of different types of roads and for evaluating the effect of the many varied loads. The entire range of tests in the planned Illinois project will be much wider, will cover a period of several years and will include tests in more difficult seasons.

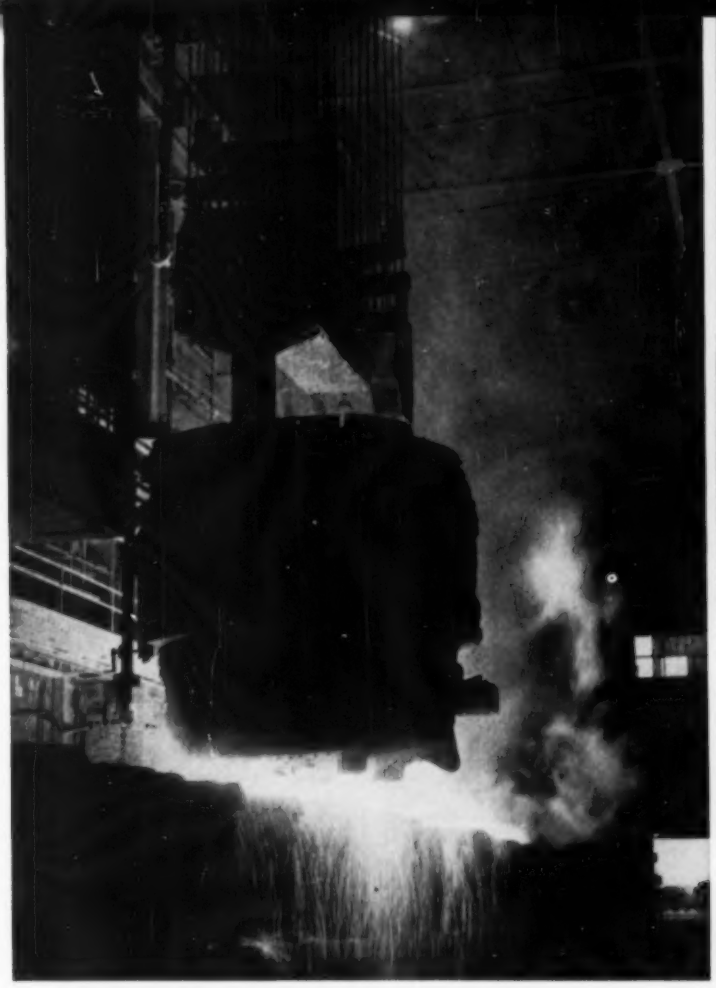
What Is the WASHO Road Test?

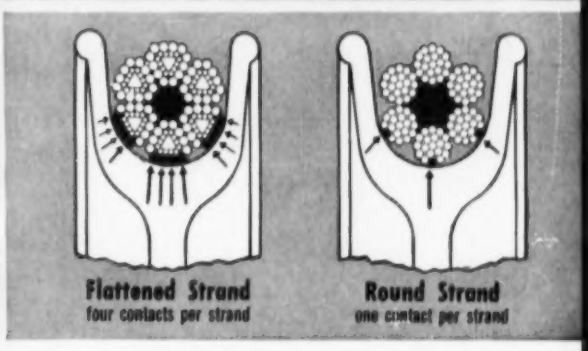
WASHO (Western Association of State Highway Officials) last year completed a program of actual field testing of two specially constructed sections of pavement in southern Idaho.

WASHO sponsored the test. The organization chose the Highway Research Board of the National Research Council-National Academy of Sciences to conduct the actual field work.

The Highway Research Board states: "The project was designed to develop information concerning the relative effectiveness of several designs of flexible pavement varying in overall thickness from 6 to 22 inches under repeated applications of 18,000 and 22,400-lb. single axle loads and 32,000 and 40,00-lb. tandem-axle loads."

• **"FIFTY YEARS OF** Forest Research in the Pacific Northwest," authored by Thornton T. Munger, appears in the September 1955 issue of Oregon Historical Quarterly.





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The 10% extra strength over round strand rope is sometimes the difference between the possible and the impossible. Hercules Flattened Strand frequently does the tough jobs which would otherwise require larger size rope—and without the bother and expense of changing sheaves and drums. The extra strength is useful, too, when shock loading is involved. Saves rope and money.

If you think that Hercules Flattened Strand wire rope may solve a problem, talk it over first with your Leschen man. He can be reached through your nearby Leschen distributor. His advice is based on the best possible authority—Leschen's long experience and engineering research—the longest in the industry. And with Leschen wire rope you are assured of higher-than-rated quality and longer-than-expected service.

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PULPTIMBER STAND AT Spasski Bay on Chichagof Island, Alaska, belongs to Georgia-Pacific Alaska Co.; is part of 7½ billion bd. ft. bid to furnish planned G-P pulp mill near Juneau. (Forest Service Photo)

Problems Confront Loggers

who plan on starting new operations in rugged Alaskan timber regions

EDITOR'S NOTE: Last Month THE LUMBERMAN featured an article describing the logging program of Ketchikan Pulp Co., the first in a series on the Alaskan forest industries. The second article describes operations of Ketchikan Pulp Co.'s contract loggers and of various other loggers in Alaska. It provides an authentic source of valuable information for the stateside logger interested in a possible future Alaska operation.

Future articles will include data on other phases of Alaskan forest industries, including timber activities of the Department of Interior.

INDEPENDENT AND CONTRACT loggers are a major factor in the forest industries of Alaska and now number close to 100. The pulp, plywood and lumber mills depend to a large degree upon many widely scattered operators for a steady log supply.

Interest is high in Alaska. The U. S. Forest Service reports a constant flood of inquiries, especially from the Rockies and West Coast.

The main centers of logging in Southeastern Alaska are Ketchikan and Juneau. The new Ketchikan Pulp Co. mill and the Ketchikan Spruce Mills receive most of the logs cut. The new Alaska Plywood Corp. and the Columbia Lumber Co. plants at Juneau get most of the rest. Three new pulp plants are in the planning stages and these will require several hundred millions bd. ft. more timber and will provide employment for dozens of new logging operators. However, it will be several years before the new demand begins.

The advice, viewpoints, opinions and personal experiences of many persons close to the logging industry of Alaska have been condensed here.

Forest Service Report

Howard Johnson, asst. in charge of resource management at Juneau, under Regional Forester Art Greeley, made these observations: "Loggers who plan on coming up from the states to begin operations here should familiarize themselves with the entire picture before making any final decision. At the present time we feel there is a sufficient number of operators to provide the needed log supply. However, new developments are coming up gradually and there will be many future opportunities. Meanwhile, applications are being received, as always, from qualified bidders on current sales. Forest Service policy requires primary manufacture within the Territory of logs that are cut from sales of national forest timber.

"Most timber is set up in what we call 'logging units.' These consist of a natural setting or group of settings to be clear cut. Good reproduction almost always occurs naturally in these fairly large units, but an adequate seed source must be provided for ahead of time. We're prepared for artificial reforestation if necessary.

"As for future large-scale timber operations, we are now working on an inventory of timber on the entire Tongass National Forest. When this is completed, in three or four years, we'll have a better idea on the boundaries for working circles and the number of additional operations possible. We're definitely keeping plant plans in line with timber supply."

Foresters at the Ketchikan office of

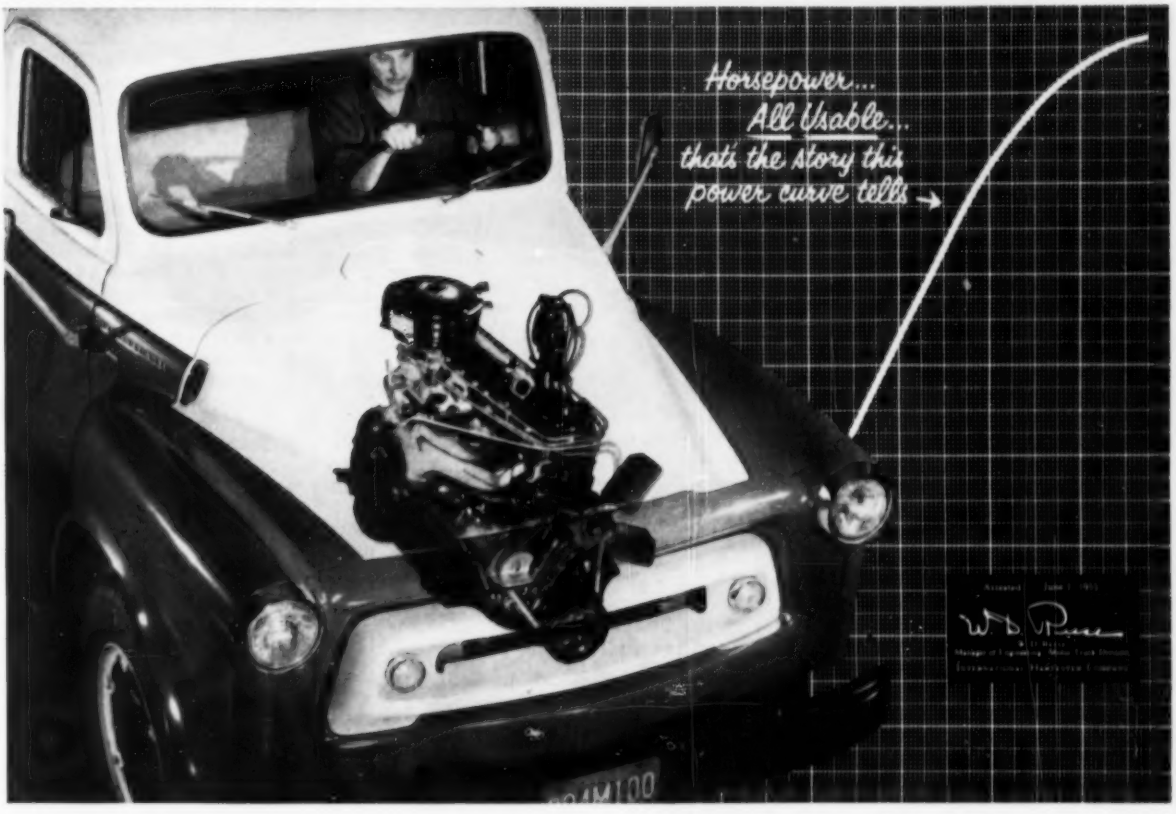
New Logging Technique

By the very nature of the country, yarding with a floating A-frame is the most-used method of logging in southeastern Alaska. At present, there are a few shows where tractors skid to water's edge or to a landing, and there are some shows where trucks are used, mostly on very short hauls; and there will be more of both of these types in the future. However, by and large the A-frame operating off-shore appears to lend itself to most of the logging chances. Since much of the logging in Alaska in the future will have to be carried out by newcomers from the states, it is important for these operators to become closely acquainted with a new and unfamiliar style of logging.

BAY LOGGING CO.'s operation at head of Neets Bay has Skagit equipment, uses Macks for hauling. View shows upper extremes of yarding and valley road. Logs are boomed to Ketchikan Pulp Co.

CAMPBELL CONSTRUCTION CO. logging operation at Kina Cove on Prince of Wales Island logs and hauls a short distance to salt water. Terrain is not rugged, but muskeg makes road building difficult.

It's usable horsepower that counts!



Many passenger car type truck engines have to rev up to high speeds to pull their loads. They strain at the job—cost big money in wear and repair. INTERNATIONAL all-truck engines turn at relatively low rpm—deliver high usable horsepower at normal road speeds, for peak performance, long life, BIG money savings.

Internationals give you power without strain at safe, economical rpm to save you the BIG money!

Rated horsepower figures don't tell the whole story of truck performance.

Wise truck buyers want to know *more* than rated horsepower. They want to know what actual *usable* horsepower they are going to get to pull capacity loads at normal, legal speeds—without undue engine strain.

Usable horsepower—that's the point to keep in mind when buying trucks.

INTERNATIONAL engines deliver high usable horsepower at economical, wear-reducing speeds. Because they are built for use in *trucks*, with no compromise with passenger car design.

You get the usable power you need, plus longest truck life, every driver comfort and convenience. See your INTERNATIONAL Dealer or Branch for trucks exactly right for your job—all-truck built to save you the BIG money.

In the world's most complete truck line, there are trucks for every timber hauling job. Conventional and COE 4- and 6-wheel Western models from 30,000 to 90,000 lbs. GVW—specialized for on or off-the-road use, in variations for exact job specialization.

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WELL-PROTECTED location at Traitors Cove north of Ketchikan is an advantage to Venable Brothers operation here. Three-man crew yards logs into salt water with floating A-frame and Washington yarder, producing 1¼ million ft. per year.

the FS administer the bulk of Alaska timber sales at present under Division Supervisor C. M. Archbold who's been in close touch with a generation of Alaska loggers. Ranger Burt Clark, on Archbold's staff, states: "The good stands of spruce are getting more inaccessible. In many future cases this will mean more truck shows, although there are many good hemlock shows loggable from the water. Interested loggers apply to us for timber offerings. If the sale fits our program, we notify them when it comes up for bid. The larger sales are oral bids, sealed bids on smaller sales.

"We have a few very small sales logged by commercial fishing boats who've had some tough luck in fishing in recent years. They can deepwater log and reach up to 400' on a hillside.

"A two-man crew with a small A-frame could log up to a million a year, on a 12-month basis. Mostly these small sales have been for saw logs but in the future they will include pulpwood.

"A sale of 15-20 million would be required to support a maximum of two miles of road. On some moraines, road building is good going but generally it is quite rugged.

"Sales planned for 1956 include one for about 20MM at George Inlet; there will be several sales of 5-10 MM in various locations, depending upon how fast they can be brought up for sale."

Why Do Some Logging Operations Fail?

This was discussed with Art Brooks, head of Ketchikan Pulp Co.'s timber activities. Ketchikan Pulp employs or has employed up to as high as 10 to 12 different contractors (as high as 30 or 40 counting all the independent loggers) since it began logging about three seasons ago. Brooks has had a good chance to observe outfits of all sizes—large, intermediate and small—some successful, others now out of business.

Brooks states, "The margin on logs in this area is not too great. The biggest reason why some operations fail up here is that their managers are too inexperienced in certain phases of their overall operation.

AIR VIEWS show why Alaskan logging is tougher—steep, rugged areas with rock outcrops, few protected booming, storage areas.

COLD-DECKING contractor R. L. Nelson, Neets Bay, averages 50M bd. ft. per day. Logs are swung to salt water by KPCo.'s A-frame.

"Most operators know their business with respect to actual logging. In the states, a contractor's worries are over when he has loaded out a load of logs onto trucks. Up here in Alaska all operators have to take care of everything—booming, rafting, setting up camps, maintaining all equipment and machinery at some remote point.

"Many loggers came up here improperly equipped and inadequately financed. Today there are very few operators who are actually in bad shape.

"There are a lot of hidden costs. Camp operation is expensive. Food is higher in price and by the time you pay to get it to a remote camp it costs a lot more. Transportation of parts, equipment and supplies is by air unless a camp can afford to build up a big inventory of spare material brought in ahead of the season by boat. Every day counts because up here we don't know how long our operating season is going to be. Anything ordered for delivery by airplane is very expensive.

"In a truck show here, logging roads are extremely costly. We cannot even give reliable figures on the costs because of the newness of this type of operation."

Art Brooks states that a successful operation should be either very small or else a good-sized one. An intermediate size operation is not an economic one here. There is just as much overhead with medium-sized operation as there is with a big one and the production is so much less it just doesn't pay.

How Much Money Is Needed?

"A new operator up here should have enough capital to set up camp, prepare logging camp, and build road (if required). I'd guess that anybody ought to have roughly $75,000 to $100,000 cash to get started, and more for a bigger outfit."

THE LUMBERMAN learned of one new operator who spent $150,000 before getting started and then said that he figured his expected costs "too low."

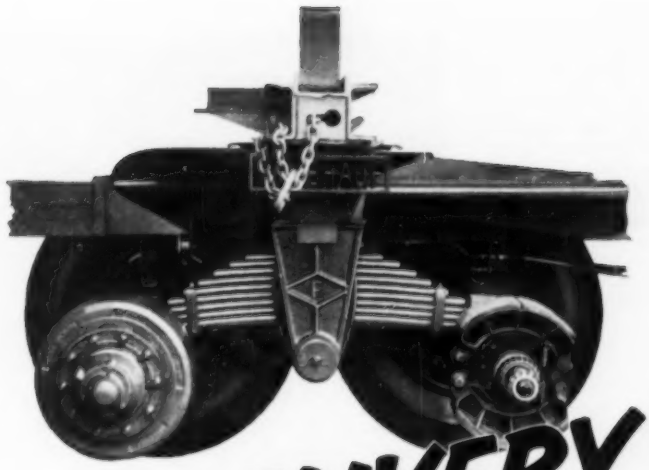
Transportation

While transportation is a major problem, it is not necessary for anyone to invest in an airplane or boat for getting around.

Ketchikan Pulp Co. doesn't have its own planes; some of the other operators have planes but they are few. Fast, reliable charter air service is available from Ketchikan. While flying is costly, when necessary it beats the slowness and loss of time required for boat travel. An outfit does need a boom boat and of course small craft for travel in the vicinity of the operation, such as skiffs with outboards.

Logging Safety

"An important cost factor is the accident one," states Brooks. "It may



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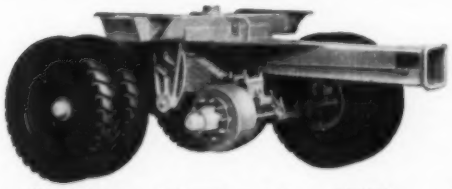
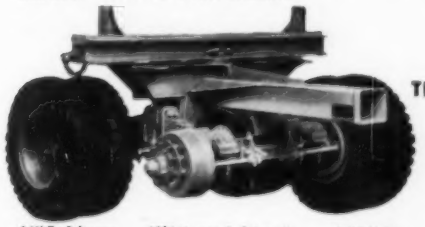


THE RUGGED
TLN-1010

AXLE, I-beam	76" tread, 4" x 5"	SPRINGS	1 leaf 1"x5"; 2 leaves ¾"x5"; 13 leaves ⅝"x5"; total 16 leaves
BRAKES	18"x7" and 20"x8" air only	TIRES (maximum)	12.00x24
BUNKS (maximum)	12'0"	UNDERCONSTRUCTION	Rubber bushed trunnion and spring ends
REACH	9⅝"x11⅝", 28' maximum		
RIM SIZE	24 x 9.00 maximum		



THE LIGHTWEIGHT
TLX-11

AXLE, I-beam	69½" tread, 3" x 4"	SPRINGS	⅞" x 4" 6 leaves
BRAKES (air or vacuum)	16½" x 7"	TIRES (maximum)	10.00 x 20, logger
BUNKS (maximum)	7'10"	UNDERCONSTRUCTION	Rubber bushed trunnion and spring ends
REACH	7⅝" x 9⅝", 24' standard		
RIM SIZE	20 x 7.5 max.		

FRUEHAUF TRAILERS

"ENGINEERED TRANSPORTATION"

World's Largest Builder of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plants, Los Angeles and Seattle

SALES AND SERVICE: Los Angeles • San Francisco-Oakland • Portland • Seattle • Fresno • Sacramento • Spokane • Billings • Salt Lake City • Phoenix • El Paso • Denver

Specifications

AXLE, I-beam	71½" tread, 3¼" x 4⅝"
BRAKES	18" x 7" with 22" wheels 16½" x 7" with 20" wheels, air
BUNKS	7'10" to 10'
REACH	7⅝" x 9⅝", 24' standard
RIM SIZE	22 x 7.5
SPRINGS	8 leaves 1" x 4"; 1 leaf, 11/16" x 4"; nine leaves
TIRES	11.00 x 22, logger
WATER TANK	in frame
UNDERCONSTRUCTION	Rubber bushed trunnion and spring ends

PERMANENT PARTS INVENTORIES

Your Fruehauf Logger will never be an "orphan," because Fruehauf Factory Branches maintain engineering drawings, parts lists, and complete parts inventories permanently for every unit built. *Orphans are expensive*—protect yourself!

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A FRUEHAUF IS YOUR SAFEGUARD!

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cost $100 just to get a stretcher case to town to the hospital. Then add the hospital and other costs and you've got a big sum, even though it may be a relatively minor injury.

"The compensation rate for injured workers is 75% of the man's weekly earnings. There is a base rate of 9% and operators with a poor safety experience pay 12%.

"Wages are about 20% higher than on the west coast of the states. Six days per week is the general custom under present conditions, and while there is no guarantee that the 6-day week will be in effect, the overtime costs add to the production cost per M for logs."

Towing Rates

Towing rates are from $1 to $5.50 per M bd. ft. for flat rafts. Cost can be computed on the basis of about 1½c per M bd ft. per mile. This is the charge made by independent boat owners.

Ketchikan Pulp's needs are filled by six to ten towing boats. There is an equal number of additional tow boats in the area.

Road costs vary between $15,000 and $50,000. Sufficient data based on experience is not yet available to pin down the average per mile costs; however, the actual cost is judged to be nearer to the upper figure. This is for a 16-ft.-wide gravel surfaced road.

Teredo Control Experiments

Teredos, the hungry worms which grow longer as they grow older—up to 30 or 40 feet long—present a major problem to any logging operation which must keep its logs in salt water for any length of time. At Ketchikan Pulp Co.'s Neets Bay operation where the big skidder is floating on a half-million board feet of logs, some control experiments have been conducted.

Sacks of powdered sodium arsenite have been hung in the water in hopes of emitting enough poison to discourage or kill teredos from chewing up the float logs. Some logs have been sprayed with the chemical, following the suggestion of P. C. Trussell of the University of British Columbia.

Unless logs can be in fresh water part of the time, they remain vulnerable to the teredos. They can ruin a 2-foot log in less than a year.

P. C. Trussell, head of the B. C. Research Council's division of applied biology, states that a research program in teredo control has been carried on for the past five years. The marine borer chiefly responsible for damage on the Northern Pacific Coast is a close relative of the true teredo, called **Bankia setacea.** The habits of **Teredo** and **Bankia** species are very similar. On the California coast both **Teredo** and **Bankia** are responsible for heavy damage to timber immersed in salt water.

The work of the Research Council has been directed chiefly toward finding a suitable treatment for temporary marine structures such as log rafts and floats, which cannot be pressure creosoted. In this work several hundred poisons have been tested for toxicity to **Bankia setacea.** The only one found completely effective at reasonable concentration levels was sodium arsenite. A solution of sodium arsenite has been used successfully to treat Davis rafts infested with marine borers. Loss of timber in a Davis raft during transit down the B. C. coast may be valued as high as $10,000, so that reduction of this loss is of great importance to the timber industry. A patent is pending on the use of sodium arsenite for controlling marine borer damage.

This chemical treatment has also been found effective against marine borers imbedded inside the pontoons of wooden dry docks. Several dry docks in Canada and the United States are now under treatment by this method.

Present research is aimed at developing a method for treating flat rafts without ponding, and for treating temporary floats and piling. Chemical treatment of flat rafts while in ponds has been found effective, but ponding is not feasible at all locations, so that a method of killing marine borers in rafts in open water is the next goal.

In addition to investigating methods of killing marine borers imbedded in timber, the Research Council is studying the settlement pattern and variation in infestation at several points on the Pacific coast to determine the best time and method for application of control treatments. The areas have been chosen for their importance to the lumber and shipping industries.

ONE OF FEW floating camps that is not beached during logging season is Island Logging Company at Gedney Pass, Revillagigedo Island. L. M. Owens rows boat out to float plane to greet THE LUMBERMAN field editor.

Typical Logging Operations

Kenai Peninsula and Prince William Sound

Up on the Kenai Peninsula, out of Seward, Irvin and Ray Tressler operate the Kenai Lumber Co. They are now getting their logs out of Day Harbor, which means a rafting operation. They report they have a good stand of timber with a large percentage of high grade material. For many years the Tresslers have been tractor logging in the Seward area, getting their logs mainly off Chucach National Forest land close to their mill. While the annual output of their mill has not been high, they have steadily provided an important supply of lumber for local and railbelt use and for the military establishment.

• • •

Owner Boyd C. Carlson of the Bayview Lumber Co., also of Seward, uses his D7 with a Hyster arch for logging spruce and hemlock on Hinchinbrook and Montague Islands in Prince William Sound from November to May. The logs are then rafted, (300 to 400 M per raft) to the Bayview sawmill site, one mile northeast of Seward on Resurrection Bay. It's 70 miles from Hinchinbrook to Seward and 110 miles from Montague.

The D7, equipped with a 'dozer blade, was responsible for digging out the log pond at the Resurrection Bay location. The pond will hold one raft load of logs.

Nelson at Neets Bay

A contractor whose assignment is a little out of the ordinary is R. L. Nelson, owner of the Daisy Logging Co. Nelson's job is cold decking by high lead, and he does this on a contract basis for the Ketchikan Pulp Co. He works hand-in-hand with the Ketchikan Pulp Co. at Neets Bay, (November issue, THE LUMBERMAN.)

The Nelson show this last season was located about 2000-odd lineal feet uphill from salt water at Neets Bay, at an elevation of perhaps 500 ft. Several high-lead settings were made to build up cold decks of pulp logs to be swung to salt water with the big Washington Iron Works slackline skidder, owned and operated by Ketchikan Pulp Co.

Nelson yards with a Skagit yarder powered by a 150 hp Cummins diesel. There is a 1¼" mainline with a haulback of ¾". Nelson has another three-drum larger Skagit in use on similar cold-decking in the same area.

Daily production for a set-up of this type is 50,000 bd. ft. In a season, in

(Continued on page 134)

IF YOU WANT BETTER FINISH... LESS WASTE... MORE ACCURACY... HIGHER PROFITS...

You'll want NEWMAN MACHINES

Geared to YOUR production

S-824 SINGLE SURFACER

One of our new line of power hoist planers made in varying sizes and types—screw bed or wedge bed — the S-824 will plane 24" wide and from 1/8" to 8" thick.

We manufacture six different types of single surfacers. The S-616 planes 16" wide. The S-620 planes 20" wide. The S-824 planes 24" wide and the S-830 planes 30" wide. The SW-824 and the SW-830 are wedge bed types.

K-16 VARIETY SAW

Designed for a variety of operations: ripping, cross-cutting, mitering, beveling, grooving, dadoing. 16" blade rips stock 26". Can cut off stock 28" wide.

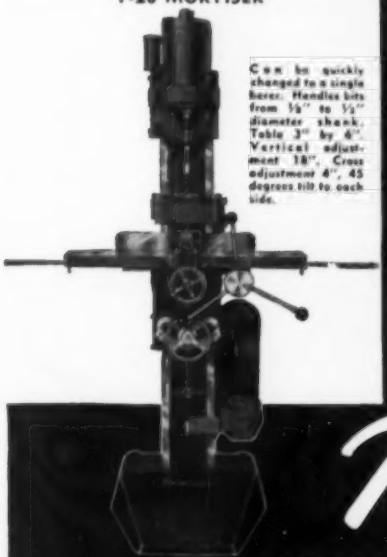
5 H.P. direct connected motor. Push button controls provide overload and low voltage protection. Cast iron base.

G-232 HYDRAULIC KNIFE GRINDER

The G-232 Hydraulic knife grinder will grind plain edge, bevel edge, or hollow grind and can be adjusted to any length of knife up to 32" long. Speed of stroke: 0 to 70 FPM.

T-20 MORTISER

Can be quickly changed to a single borer. Handles bits from 1/8" to 1/2" diameter shank. Table 3" by 6". Vertical adjustment 18". Cross adjustment 4". 45 degrees tilt to each side.



The machines shown here are but a few of those manufactured in our big new modern plant, now turning out a full line of up-to-the-minute Woodworking Machinery. The Newman series of Planers and Matchers has achieved an enviable reputation throughout our woodworking industry. We also produce pineapple feed tables, tenoners, shapers, hand jointers, circular resaws, rip saws, swing cut-off saws, high speed steel planer knives and cutterheads of many types. Our large staff of design engineers constantly seek newer, finer techniques and quality controls from first conception through drafting room, pattern shop, foundry and machine shop. All Newman cylinders, side heads and pulleys are dynetrically balanced to assure perfect balance and smooth vibration-free operation throughout a long productive and profitable life.

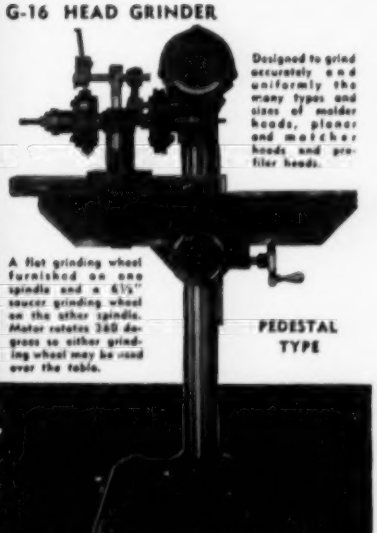
Remember, you'll always get more profit dollars from Newman Machines—

Geared to YOUR production.

G-16 HEAD GRINDER

Designed to grind accurately and uniformly the many types and sizes of molder heads, planer and matcher heads and profiler heads.

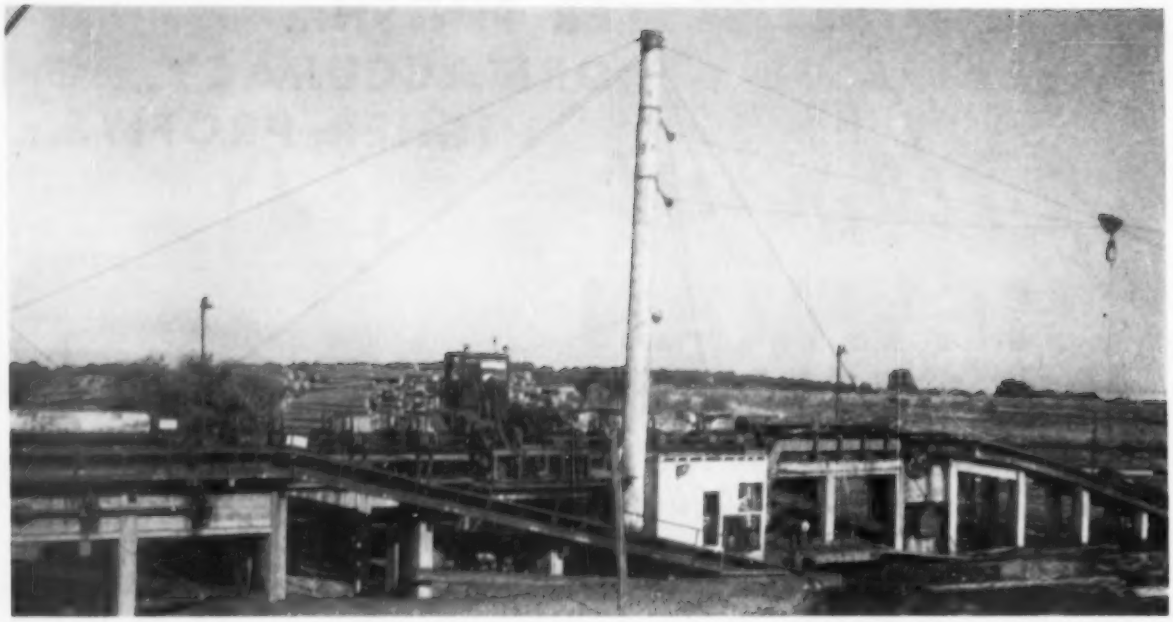
A flat grinding wheel furnished on one spindle and a 6 1/2" saucer grinding wheel on the other spindle. Motor rotates 360 degrees so either grinding wheel may be used over the table.



PEDESTAL TYPE

Newman MACHINE CO., INC.

GREENSBORO, NORTH CAROLINA, U. S. A.



BURNT RIVER MECHANICAL log barker (built by Sumner Iron Wks.), log haul, and log transfer at Winton Lumber Company, Martell, California.

Barker Aids Recovery

of chippable material in California mill, which installed mechanical unit

WINTON MANAGEMENT WATCH barker operation: (L. to R.) JOHN DEAN, sawmill supt.; CLAYTON CHATFIELD, construction supt., and C. J. WINTON, ass't. gen. mgr.

INSTALLATION OF A sawmill-type Burnt River Mechanical Log Barker (Sumner Iron Works) by the Winton Lumber Company, Martell, Calif., is another step forward in that company's program of utilization. The barker-chipper combination achieves almost total log utilization and practically eliminates the burner.

Winton was also one of the first big timber owners and lumber producers in California to join the Tree Farm movement.

The barker will handle logs 8-in. to 60-in. diameter, and 10-ft. to 40-ft. long. Douglas fir, white fir, ponderosa and sugar pine logs are barked prior to entrance to the sawmill. Results: clean chips for pulp making, elimination of tramp iron, (which saves saws) and increased lumber production.

In this barker, originated and developed by A. A. Brandenthaler for his Burnt River Lbr. Co.'s sawmill, at Baker, Ore., bark is scraped from the log by four revolving heads. In the final cleaning, a revolving brush removes all the loose debris and cambium layer from the log. (See August 1954 THE LUMBERMAN.)

LOG GOES through the barker at Winton Lumber Company. Bark is scraped from the log by four revolving heads and is finally cleaned with revolving brush which removes the cambium layer from the log.

ALL FOUR HEADS are powered with Dudco hydraulic motors, manufactured by the Dudco Division, New York Air Brake Co. Cutters are driven by an individual Dudco motor through a short chain direct to the cutter shaft.

The barker, set on a reinforced concrete foundation, is above pond level. It is an integral, in-line part of the manufacturing operation between the pond and the sawmill.

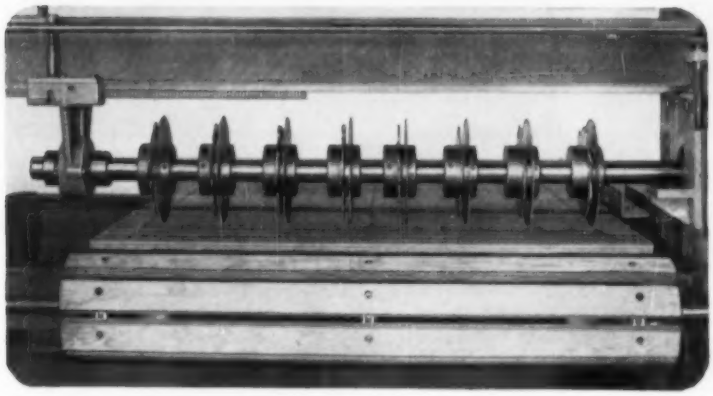
Logs come up the regular log haul, just ahead of the barker, on to a set of heavy, concave infeed rolls. As logs reach the barker, a set of jump rolls brings the log on to the barker proper. When the log is in position for barking, the jump rolls lower the log on to a series of turning wheels, which may be adjusted to vary the rate of feed through the barker. The rate of feed varies according to the diameter of the log.

This feed is adjustable at the discretion of the operator, through hydraulic controls. The turning wheels may be adjusted in and out to accommodate various log diameters. Hydraulic motors, hydraulic controls, and

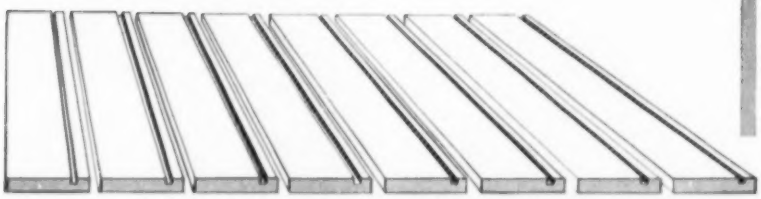
with the **MEREEN-JOHNSON NO. 435-H**

YOU GET ALL 4

MULTIPLE CUT-OFF...
MULTIPLE GROOVER...
MULTIPLE RIP SAW...
EQUALIZER



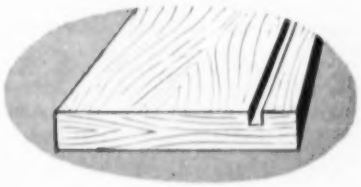
Arbor set-up for multiple drawer front work.

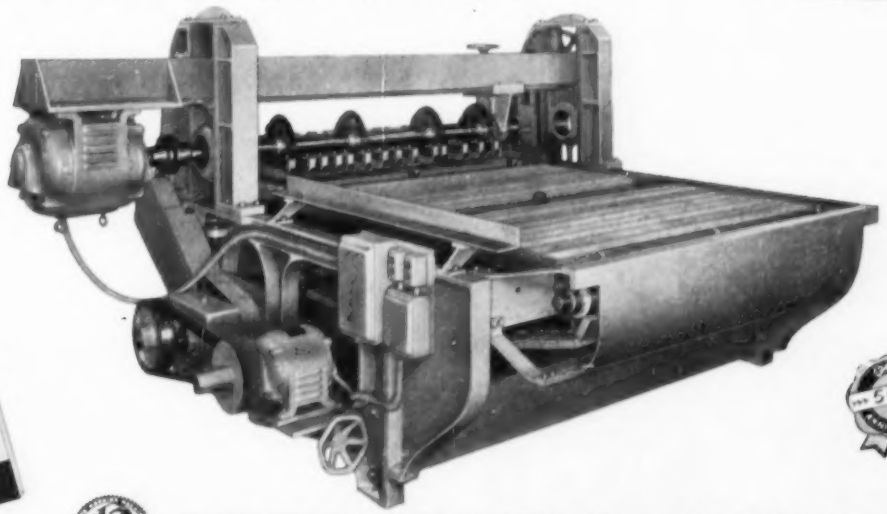


8 identical drawer fronts ripped and grooved in one pass.

THESE 4 are only a few of the uses for the versatile M-J No. 435-H Slat Bed Machine. Installations in furniture factories have proved that this machine will produce parts formerly manufactured on variety saws and by other hand operations. This machine is available in a wide variety of sizes and with practically any number of saws and groovers or saw and groover combinations. It's one of the most adaptable machines ever designed for use in a modern woodworking, plywood or furniture plant.

- **Trims ends of an entire case front, while notching or easing edges of drawer front ends.**
- **Sizes and squares plywood to ceiling and wall squares.**
- **Rips a complete panel into bed rails in one pass.**



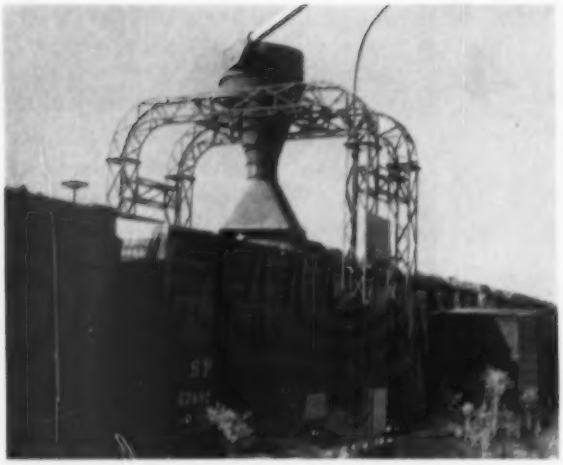


Write for the No. 435H Bulletin.

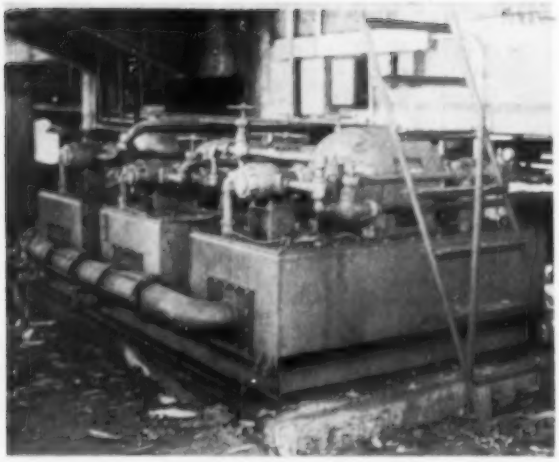
MEREEN-JOHNSON MACHINE CO.

4401 LYNDALE AVE. NO. • MINNEAPOLIS 12, MINNESOTA

CUT-OFF SAWS | DOUBLE CUT-OFF SAWS | MULTIPLE CUT-OFF SAWS | GANG RIP SAWS
TENONERS | VENEER & PLYWOOD SIZERS & JOINTERS | RESAWS



CHIP CARS ARE loaded at Winton for shipment to Fibreboard Prod. pulp mill. Car moving device by Industrial Components, Inc.



THREE HYDRAULIC power units made by The Rucker Co.—Dudco hydraulic pumps powering Dudco hydraulic motors on barking heads.

circuit engineering were furnished by the Rucker Company (Oakland, Los Angeles, Calif.; Portland, Ore.; Seattle, Wash.).

THE DEBARKED LOG moves on to a set of outfeed rolls and can be sent into the mill, or be diverted with an unloading arm on to a chain transfer which conveys it to a second log haul where it may be returned to the pond. This log haul is fully reversible; the de-barked log can be returned to the pond, and over-sized logs can be sent direct to the mill, by-passing the barker.

The barker will handle more than the mill's capacity—1000 board feet per shift—in a given time. An eight-hour shift of logs can be barked in less than six hours, allowing at least two hours maintenance and cleanup, accomplished by the barker operator.

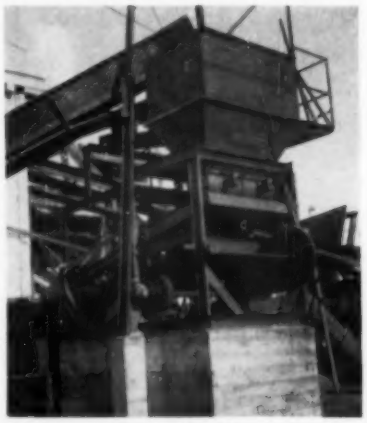
Bark falls through the barker on to a Pioneer rubber belt conveyor 24" wide, running on throughing rolls, and is conveyed to the east side of the mill where it is fed automatically and hogged with a Diamond hog, part of the original installation. Hogged bark is mixed with sawdust and travels to the fuel house over the original fuel conveyor.

"Experience has shown that since the barking process is a dry one, the hogged bark makes an excellent fuel", said C. J. Winton, Assistant General Manager, Winton Lumber Co.

THE SUMNER 72" Sawmill Waste-wood-Type Chipper, with wide-spout opening, is powered with a 250 hp. General Electric motor and is located directly beneath the original refuse conveyor. This formerly took the mill waste to the burner and is so located that one man can feed the entire waste output to the chipper spout.

Chips are conveyed from the chipper on a chain conveyor to a Sumner Iron Works 4½" x 11' chip screen. Chips drop from the screen into a charger, which admits metered amounts of chips into a 10" high pressure blow pipe system driven by a Sutorbilt blower. The pneumatic conveyor system including the charger were supplied and installed by Rees Blow Pipe Manufacturing Company, Berkeley, California. Chips are blown 1500' to a railroad spur where they are automatically loaded into open top box cars, the movement of which is controlled by a series of photo-electric cells.

In this particular installation, which was designed, built and installed by Rees Blow Pipe Mfg. Co., using parts furnished by Industrial Components, Inc., Beaverton, Oregon, chips are loaded in the front end of the car. The



SUMNER IRON WORKS chip screen (4½-in. x 11-ft.). Bearings by Dodge-Timken.

car moves automatically 2 feet forward, the chips fill that space, the cars move ahead 2 more feet, until the chips are falling in the last two feet of the car. When the car is loaded, a signal flashes in the chipper room warning the chipperman (who controls chipper operations and car loading) that the car is full. By a series of electric controls, he moves the next car into position.

THE CHIPPERMAN'S control panel shows the exact position of the cars, even though he can't see them.

The weekly output of about 12 cars of chips is shipped to Fibreboard Products, Inc., San Joaquin Division Pulp Mill, East Antioch, Calif.

"As a result of this barker, chipper system," R. S. Kearns, General Manager of the Winton Lumber Co. told THE LUMBERMAN, "Almost all of the plant leftovers are now utilized in fuel or chip consumption, and the burner has practically been eliminated."

Those responsible for the installation of the barker-chipper setup at

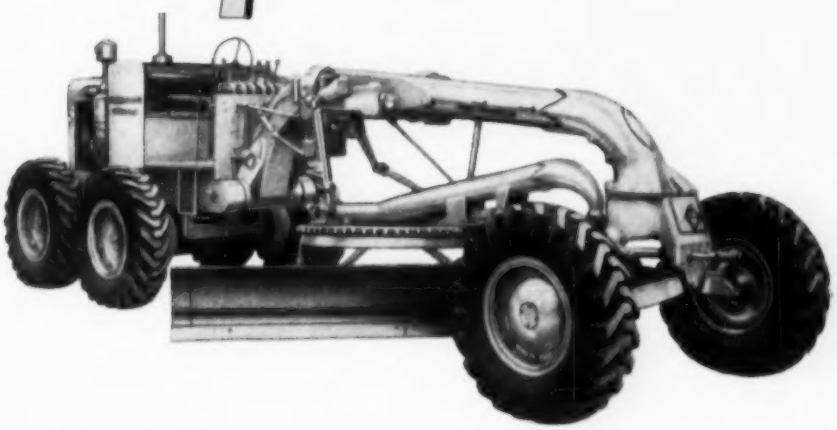
(Continued on page 133)

SUTORBILT blower, powered by GE motor, blows the chips 1500 feet to cars. On right chips are shown dropping into Rees Blowpipe charger, which admits metered amounts of chips into 10-in. high pressure blowpipe.

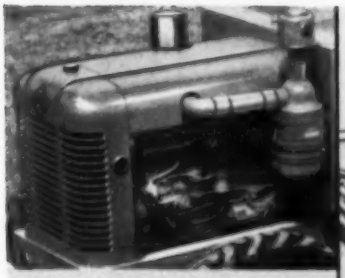
ALLIS-CHALMERS BIG NEW Forty Five MOTOR GRADER

NEW BIG SCALE PERFORMANCE

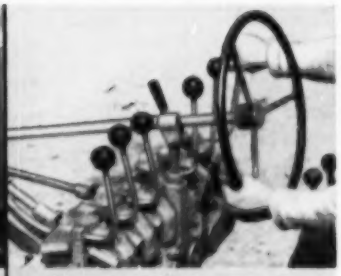
NEW OPERATING EASE AND COMFORT



120 HORSEPOWER • 23,800 POUNDS

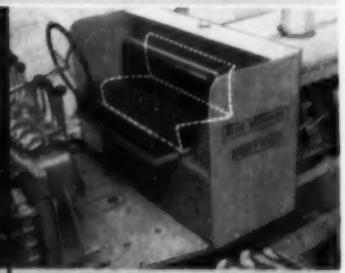


Powerful new Allis-Chalmers diesel featuring exclusive "follow-through" combustion for smooth performance, clean combustion, extra long life.



All-new toggle-type controls give a *Forty Five* operator precision control with positive "feel" — easy finger-tip action regardless of load.

New accelerator-decelerator pedal lets the operator change engine speed with his foot — without touching his hand-throttle setting.



"Box seat" comfort and visibility — Foam-rubber seat adjusts for sit-down or stand-up operation. Roomy platform has tapered corners for top visibility.

The *Forty Five* is a truly modern heavy-duty motor grader . . . designed for progress and built to *today's* standards of accuracy, dependability, operating ease and low cost. On any construction or maintenance job, you'll see all the advantages of balanced power, weight, traction and proper speeds . . . plus brand new advantages for the operator and mechanic that no other heavy-duty grader offers.

We invite you to check the features shown here. Then for the full story on the *Forty Five* — including extra-big clearances, exclusive ROLL-AWAY* moldboard, single-member tubular frame, fully enclosed power steering, new, long-wearing ceramic clutch lining and unit construction for matchless service accessibility — see your nearby Allis-Chalmers dealer.

*ROLL-AWAY is an Allis-Chalmers trademark

MAJOR ADVANTAGES THAT MEAN MORE PRODUCTION . . . LESS MAINTENANCE . . . EASIER AND BETTER OPERATION

CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

The Lumberman — SAFETY ENGINEERING

National Safety Council Holds Session

THE NATIONAL SAFETY Congress was held in Chicago, Illinois, on October 17-21. The Wood Products Section discussed various aspects of safety engineering.

Describing how the three E's—Education, Engineering and Enforcement—were "sold" in small woodworking plants, W. C. Creel, North Carolina Dept. of Labor, outlined these rules of thumb:

- When you're selling management, stress dollars and cents.
- When you're selling supervisors, emphasize production and quality.
- When you're selling workers, stress the human element.

He pointed out that the best way to reach the production worker is through a simple safety committee with employee representation.

Trade unions can participate in safety programs, stated John T. Atkinson, I. W. A. Safety Director, Vancouver, B. C. He described the three-way cooperative program in British Columbia, between labor, management and government. The union exercises its responsibility through getting safety education to the worker. This is done by publishing safety material in union publications, radio programs and establishment of committees.

A description of the various saws made by his firm for the wood products industry was given by Howard O. Wiesen, Atkins Saw Div., Borg-Warner Corp., Indianapolis, Ind. The saw division makes over 13,500 different kinds of saws. Special attention has been given to making these safe to use on the various jobs for which they are designed.

An analysis of woodworking accidents and their causes was given by H. Mabson, Industrial Accident Prevention Associations, Toronto, Ontario. He attributed many of these accidents to such faults as not having a limit stop or chain on swing saws, improper working practices, defective mechanical conditions on machines, and failure of employees to follow instructions on use of guards.

Other industry men appearing on the program included: Ed Sorger, Dept. of Labor and Industries, Olympia, Wash.; Tom Thompson, Tomahawk Tbr. Co., Ely, Minn.; Ray Wozniak, Chicago Lighting Institute, Chicago, Ill.; Henry B. Duffus, Westinghouse Electric Corp., Pittsburgh, Pa.; Henry G. Lamb, American Standards Assoc., New York; W. M. Allison, B. C. Lumber Mfgrs. Assoc., Vancouver, B. C.; Ray Schoenig, Curtis Cos. Inc., Clinton, Iowa; Gordon R. Mercer, Algoma Ply. & Veneer Co., Algoma, Wis.

"I say there, chaps. I've severed this beastly thing at the base, and if you don't look lively now, I'm afraid it will topple over on you."

Safety News

• **TREND IN LOGGING** fatal accidents in Washington is definitely down. The deaths in 1954 numbered only 27 as against 70 in 1947. Of the 27 last year, 11 were in rigging, nine in falling and bucking and seven in log transportation. Logging fatals for last eight years were as follows: 1954—27; 1953—33; 1952—34; 1951—42; 1950—61; 1949—42; 1948—60; 1947—70.

• **THE INLAND EMPIRE** Sawmill Club of eastern Washington, Idaho and Montana is the first organization in the forest industries to adopt the policy of including safety as a topic at every meeting. At the group's summer meeting, safety was one of the major problems discussed.

• **HENRY E. BRANAGH** has been appointed administrative officer in charge of the Safety Section of the California region of the U. S. Forest Service. He succeeds Joseph T. Radel who has been appointed a forest supervisor.

• **THE WENATCHEE N. F.** in Washington has received the National Safety Council Certificate of Commendation for its outstanding safety record from Aug. 17, 1951, through Dec. 31, 1954. During this period of 40½ months forest personnel completed 657,409 man hours of work without a single disabling injury.

• **THE U. S. FOREST** Service has prepared a mimeographed list of important sources of safety materials. It can be obtained by writing to Seth Jackson, USFS, Washington, D. C.

• **THE OREGON STATE** Industrial Accident commission has published in its monthly publication "Safer Oregon" a cartoon chart showing binder chain requirements. This gives an at-a-glance summary of the state law. Twelve examples are shown.

• **AT THE GOLDEN** Anniversary meeting of the Society of Automotive Engineers in Portland, Ore., last summer, W. E. Meyer, Pennsylvania State University, gave a paper on manifold braking for heavy "over the road" trucks. It described applications of exhaust manifold braking.

• **THE PRESIDENT'S CONFERENCE** on Occupational Safety will be held in Washington, D. C., on May 14-16, 1956.

Safety Tips

• **PAPERS DETECT OVERHEATING.** Thermometers made of heat-sensitive paper are a new development for determining surface temperatures. Two-inch strips of paper coated with a white material and pasted to the surface of an object to be watched, turn black at predetermined temperatures. They are presently available in 30 different temperatures between 115 and 490 degrees F. Once a strip has reached its rated temperature, it will turn black permanently regardless of future temperatures.

This sensitized paper can be used to good advantage on electric motors to determine whether a motor overheats at any time; similarly on engines, ovens and electrical conduits.

• **IF YOU MOUNT CO_2** extinguishers in power trucks, be sure that they are securely mounted. A CO_2 extinguisher dropped will turn into a missile when its head is broken off.

• **SIMPSON LOGGING CO.**, Shelton, Wash., has provided additional protection for its setters by installing four curved steel knee guards on the carriage. Soon after the new guards were installed on Sawmill Two log carriage, a wild log split and spilled in the directions of the setter, who credits the guards with saving his life.

• **SAFETY BELTS ON** tractors used in logging are being employed successfully by Union Lbr. Co., Fort Bragg, Calif. Operators claim they eliminate bracing against levers and pedals and gives them one more hand to work with. They're worn loose on level ground and tight on hills. And they make the skinners less tired.

STETSON ROSS

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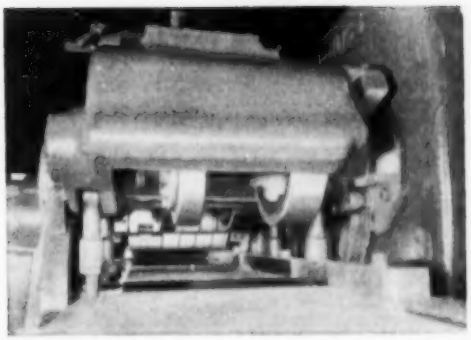
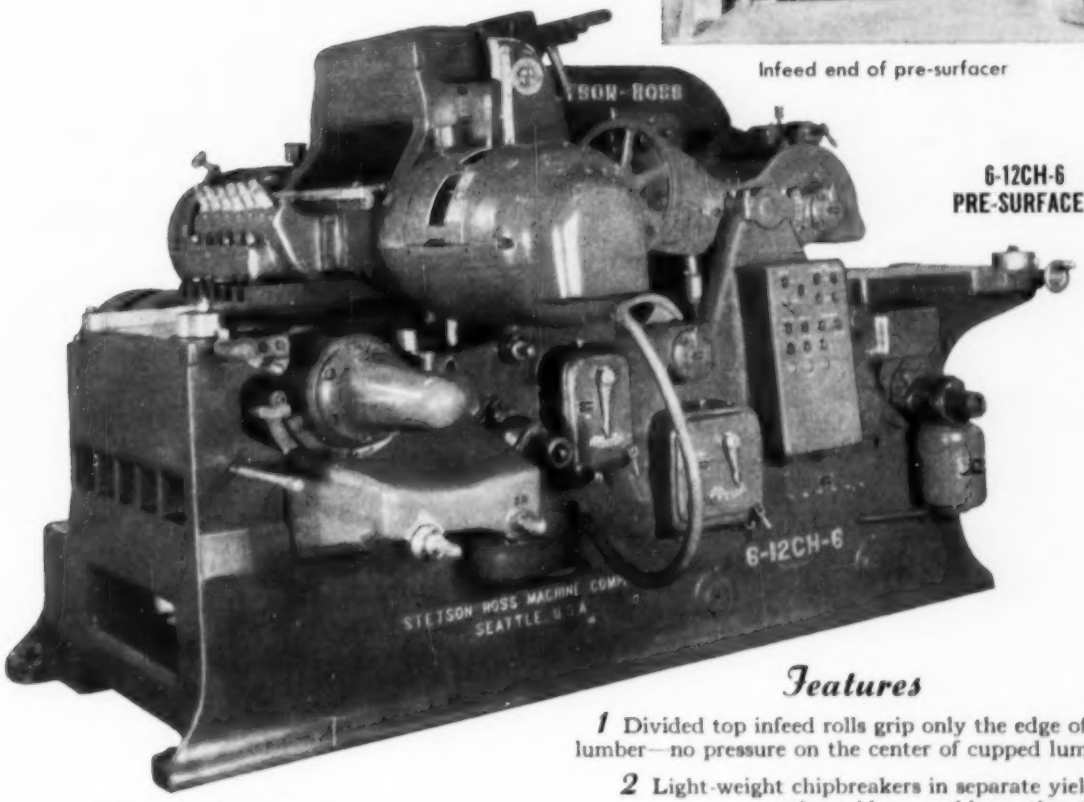
Reduces "Roll-Split" 80 to 90%



Infeed end of pre-surfacer



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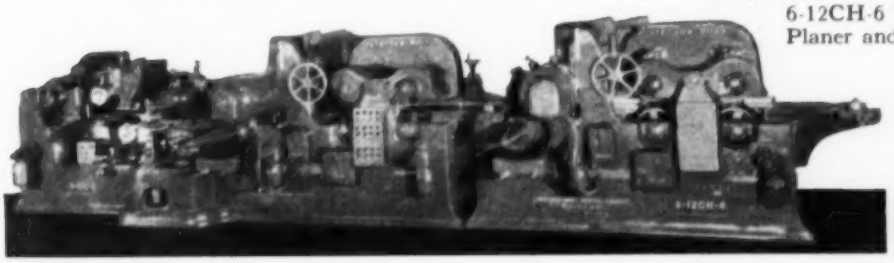
This machine adjoins a regular Planer and Matcher of any make. A single feed motor drives both Planer and Matcher and Pre-Surfacer. 6-12CH-6 Pre-Surfacer with 6-12-C1 Planer and Matcher are shown here.



You are invited to write for information on saving lumber through pre-surfacing.

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Torque Converters Save Trucks

in logging industry and will play a more important role as the hauls get tougher

TORQUE CONVERTERS LONG ago have proved their value in logging on yarders, loaders, shovels and tractors. They have been accepted as "shock absorber" units which prolong engine life, save time, cut down on costs by saving rigging and clutches, and generally minimize damage to equipment.

But the application of torque converters to logging trucks has thus far been relatively limited. A survey by THE LUMBERMAN disclosed that in the western states there are comparatively few logging operators who are using them and that there is a considerable lack of understanding as to what a torque converter does and doesn't do.

TO PROMOTE BETTER understanding of the working advantages of a torque converter in logging trucks and to point out current engineering shortcomings, THE LUMBERMAN has obtained information direct from torque converter manufacturers, truck manufacturers and logging operators and herewith presents a review of its findings.

History of Torque Converter

It's not new. Invented more than 50 years ago, it survived as a theory until about pre-World War II time and took off rapid-like about 10 years ago.

The Germans in 1912 perfected a hydraulic device in designing marine gear application for large horsepower application. First use of torque converters was on small locomotives in Europe. In this country, the torque converter made its appearance in the '30's on small switcher locies. In the early '40's, it appeared on bus drives. During the war, it showed up on military trucks. Subsequently, it was adapted to various off-highway applications where starting torque demands are high, principally steep, tough hauls in the mining industry.

How Does It Work?

A direct fluid coupling has one fan (turbine) connected to the engine driveshaft and one to whatever is to be driven. Both are enclosed in an oil bath. The engine drives the first turbine, forces fluid against the second turbine and makes it turn. Power is transmitted to the load.

The torque converter adds a third turbine to this drive—placed between the other two. This is called a stator. The three basic elements in a torque converter are the pump (driven by the engine), the turbine (on the output drive) and the stator.

The pump converts mechanical energy into kinetic energy in the fluid being circulated. The fluid enters the turbine wheel, giving up its energy, as torque and rotation. Fluid leaving the turbine enters the stator (reaction member), where the direction of flow is reversed. The oil with its unexpended energy enters the pump in the same direction as its rotation.

If this reaction member were not present, the direction of fluid emerging from the turbine would be in a direction to oppose the action of the pump and would prevent the multiplication of torque. At the stall condition, when the output member is stationary, the energy in the fluid impinging upon the turbine is converted into torque.

AS THE TURBINE starts to move, this torque decreases until the turbine approaches the same rotational speed as the pump wheel. As the speed of both pump and turbine approach synchronization, torque multiplication decreases to unity. We then have the equivalent of a fluid clutch or flywheel.

When this condition occurs, blades of the stator are in such a position they obstruct the flow of oil. If no corrective measures were taken, this would result in a sharp decrease of torque and efficiency. The corrective measure is to permit the stator to "free wheel" in order to get it out of the way of the fluid flow, so it may pass unimpeded through the hydraulic circuit.

The hydraulic circuit is completely enclosed. Sufficient charging pressure is provided by a separate pump to assure full oil level at all times. Since the input and output torque are different, this difference must be balanced by a reactive force. This is provided by having the stator fastened to the external housing. Provisions for cooling the oil are made.

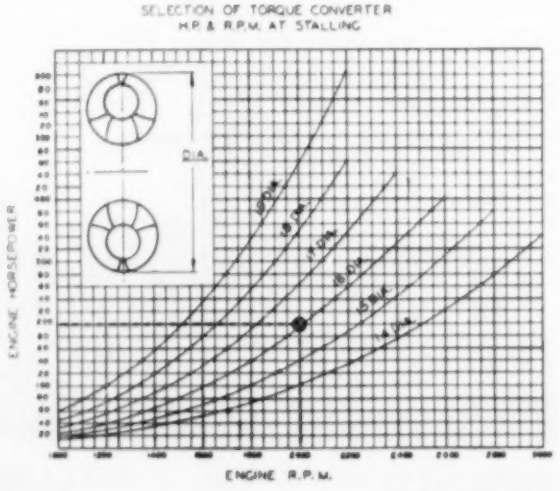
THERE ARE THREE BASIC types of converters in use today: the single stage, the two stage and the three stage converter. The single stage consists of three elements: the "pump", connected directly to the engine; the "reaction member" or "stator"; and the "turbine", splined to the output shaft. The 3-stage converter has six

Torque Converter

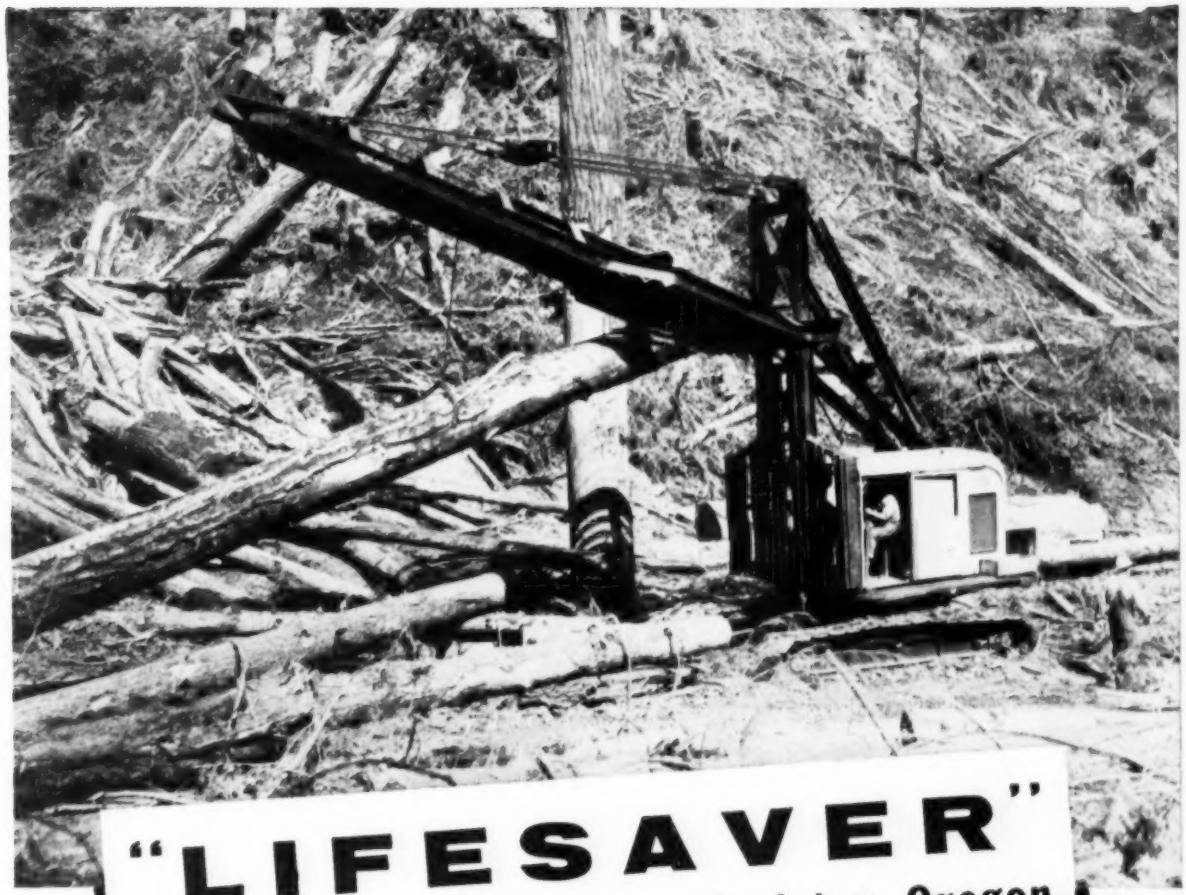
Several definitions of a torque converter can be used.

- It is an automatic compensator for changes in output torque demand.
- It is an infinitely variable torque amplifier.
- It is a device to permit the prime power to deliver essentially constant horsepower at constant speed for maximum efficiency of the input drive.

The torque converter does, through its infinite range of ratios, what a mechanical transmission does at maximum efficiency in its step-by-step shifts.



This is type of chart furnished by torque converter manufacturers to aid truck operators in selecting the correct size of unit to match engine, which is important.



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"We are pleased with our Lorain. It has been a real lifesaver in our operations"—is the statement of Merle Beck, partner on the Beck Bros. show, Mapleton, Oregon, about his Lorain-50 Log Loader.

Here are the job facts. The "50" is shown working at a landing at Waite Creek, Oregon, equipped with a special tram heeling boom for loading logs to trucks. Logs are old and second growth fir, ranging up to 7 ft. in diameter at the butt end. The special tram boom permits varying the lifting radius from 20 ft. to 28 ft. without booming up and down. This readily adjusts for various weights of logs.

Power is plentiful to handle the biggest logs and the Hydraulic Coupling power take-off keeps engine power working all the time. The biggest load cannot cause the engine to "die" . . . there is no "slam-bang" loading. "Air-Ease" controls make operation easier, smoother and more accurate. Time is saved, too, as power is transmitted directly to each operation so the operator can "gang-up" full power on any one operation when needed, or can distribute power to handle simultaneous operations. The 14 ft. long by 11 ft. 4 in. wide K-6 crawler gives greater stability at lower ground bearing pressures.

Lorain Log Loaders are "savers" in many ways. There are crawler or rubber-tire models in a wide selection of sizes to serve any type of show. Get all the facts from your Thew-Lorain Distributor. He is better able to fit your needs because he offers the most complete selection of Log Loaders with features most wanted by logging men. See him soon.

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Light Weight Tractor	B72LT	B73LT	B753LT	B75LT	B753LT
Light Weight Six-Wheeled Tractor	B72LST	B73LST	B733LST	B75LST	B753LST
Six-Wheeled Truck	B72S	B73S	B733S	B75S	B753S
Light Weight Six-Wheeled Truck	B72LS	B73LS	B733LS	B75LS	B753LS

*Cummins 262 h.p. turbocharged diesel optional

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elements: a pump, two reaction members and three turbines.

The single-stage torque converter has better efficiency in the working range and can be equipped with a double-acting reaction member which offers the added advantage of the coupling feature.

Ordinarily, the reaction member (stator) does not rotate. In the case of the single-stage converter, the reaction member can be mounted so that it will rotate in one direction—or free wheel—but is held stationary in the other direction.

Converters are specified both by horsepower rating and by diameter. The horsepower rating of the torque converter depends upon the rated speed and horsepower of the engine with which it will be used. It is necessary to match a specific type and size of converter with a specific engine. A haphazard matching of converter and engine will result in a poor-performing unit.

The logging operator should also specify the type of operation which he will encounter. This should be broken down into the percentage of highway and off-highway use, maximum grade to be expected and the normal loads and maximum loads encountered. In addition to engine characteristics, the logger should also supply complete truck specifications.

One typical installation reported is a torque converter installed in an off-highway logging truck, equipped with a set of Timkens 6.1/6 to 1 ratio rear ends. The truck was also equipped with a new JT Cummins engine and 5-speed overdrive. The truck is used for logging operations involving 50 miles of highway and about 15 miles of off-highway travel with grades of over 20 percent. The operator reports that the torque converter eliminated well over half of the gear shifting.

Use in the Logging Industry

Engineers who have studied torque converter applications for a number of years state that logging presents the most varied set of operating conditions found in any industry. Log haulers do more overloading of equipment than do other types of haulers, such as mining and heavy construction.

The torque converter in a logging truck does **not** eliminate the gear box or transmission. It is an extra unit placed between the engine and transmission. It is not an automatic shifting device. It is a supplement to conventional transmissions.

The torque converter in its present version offers no value for a public highway log truck. Reasons are:

- It increases truck dead weight by approximately 1200 pounds, depending on the model used. With the struggle to gain maximum payloads, this is a serious disadvantage.
- It decreases miles per gallon.
- It is of no particular value on level or gently rolling topography.
- It cuts engine efficiency, because you must give away 10 to 15 percent of the engine power.

The torque converter, which costs from $5000 to $6000, has its prime value on off-highway hauls, especially where topography is rough, adverse grades are considerable and where trucks must pull away with big loads under poor road conditions.

FOR THE LOGGING truck, the torque converter will:

- Permit the engine to operate at nearly governed speed to develop maximum horsepower at all times.
- Absorb shock loads, jolts and jars.
- Avoid engine lugging even in axle-deep mud or on steep grades.

For the man behind the wheel of the logging truck, it will:

- Permit the truck to operate with extreme smoothness, thereby making the job less fatiguing.
- Eliminate approximately 60 percent of the shifting normally encountered, thereby making it easier to handle the truck.

For the logging truck operator, it will:

- Substantially reduce truck maintenance costs.
- Substantially increase the work load per unit of time because of faster cycles.
- Provide a safer operation because the truck handles easier and better.

HOW CAN THE torque converter best be applied to the truck?

Combined ratios of the main transmission and auxiliary transmission presently range from approximately 14, or 15:1 to 1:1, with a possible over drive. These ratios are graduated by combination shifts in the two transmissions to allow a successive increase in speed, or when shifting down, an increase in torque to the wheels.

The torque converter, like the transmissions, offers ratio change automatically with infinite ratio selections to meet load requirements, within its range. This range in various torque converters extends from 2:1 to approximately 6:1. The extreme point of torque converter ratio is at stall and no effective work is being done.

Some point less than the maximum torque output of the torque converter will produce motion to the wheels. Since this equals approximately the range of ratio in the auxiliary transmission, the auxiliary transmission could be deleted and a torque converter installed, with a standard type disconnect clutch, between the engine flywheel and the main transmission. The truck then will cover the same basic torque ranges to the wheels as before.

There is, however, a definite efficiency loss between engine speed and output shaft speed of a torque converter, which must be considered in

obtaining top speed in any given gear of the transmission. The best means of overcoming this loss is by use of a lock-through clutch, which will give an effective 1:1 ratio through the torque converter.

Routine Maintenance

Because the torque converter package is a compact, totally-enclosed unit, there is little that can happen to it and little that can or should be done to it in the way of maintenance. Routine maintenance can be summed up as follows:

- Change the hydraulic oil in the converter at the regular intervals recommended by the manufacturer (generally 750-1000 hours). Clean or change filter.
- For torque converter types that require greasing (not all do), grease according to manufacturer's recommendations.
- Check oil level in converter daily—never add more than the indicated required level. Follow the manufacturers recommendations for checking. (Check with engine idling).
- Periodic overhauling as dictated by needs of particular equipment in which it is used. Manufacturer's instruction as to disassembly and re-assembly should be followed. Cleanliness of torque converter parts is an absolute necessity—dirt in any form will cause trouble. Before reassembling, all parts should be thoroughly cleaned with a suitable cleaning fluid. All parts should then be wiped or blown dry with moisture-free compressed air.

Trouble Shooting

Because the torque converter is new and unfamiliar to the average operator, there is a tendency to blame it every time something goes wrong. Not all troubles are due to simple mistakes. But it takes a little investigation and trouble shooting before the source of a difficulty can be properly isolated.

Field experience has indicated that in a large number of cases the fault is that of the engine, either improperly matched to the converter or out of adjustment. For the torque converter to operate in its most efficient range, it is necessary that the engine operate within a specific RPM range. Low engine RPM can be due simply to an incorrect fuel setting or general poor mechanical condition.

If there are extra power accessories tied to the engine in tandem with the torque converter, the engine will not be able to turn at the desired RPM's for the torque converter. A not uncommon trouble is the fact that the engine governor has been set too low for the needs of the torque converter.

To do a good job of trouble shooting, the operator should know the desired engine RPM for the converter coupled to it. By checking the engine RPM at full throttle he then will be

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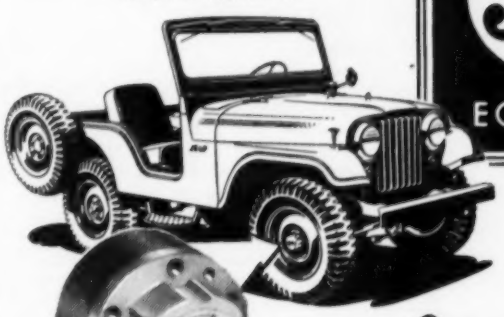

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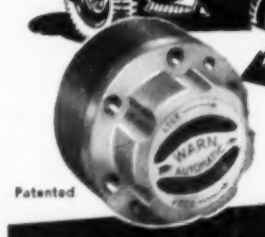

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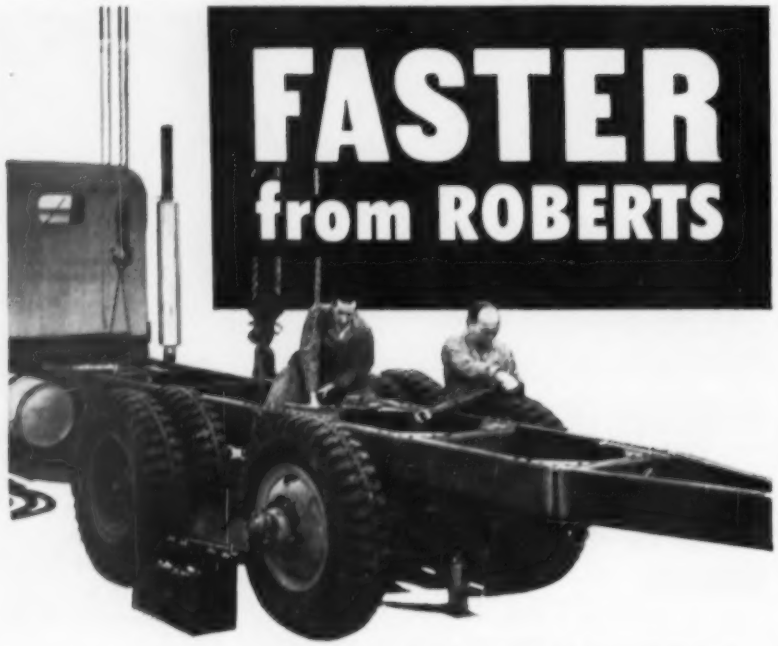

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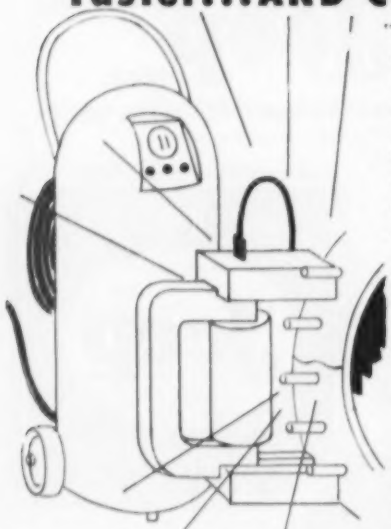

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able to either pinpoint or eliminate many sources of trouble.

ANOTHER CLASS OF trouble is converter overheating. This again may be caused by low oil level. If the engine RPM is low it means that the torque converter will be overloaded because it will be asked to do the same amount of work with a lower power input. The result is converter overheating. Other causes of overheating may be a clogged engine or converter cooling system; faulty oil pump; excessive seal wear. Seal wear will let the oil return to the sump and bypass the cooler.

If the torque converter has been severely overheated, it is desirable to change the oil immediately to avoid "varnish" formation, i.e., oil breakdown. Should the overheating be prolonged, it may be necessary to disassemble the converter so that the "varnish" can be cleaned out before the oil passages, filter, etc., get clogged.

High or low oil pressure in the converter is a third class of problems. Low oil pressure can be due to low oil level; an open regulating valve; or a cracked oil line or converter case. High oil pressure may be due to a faulty regulating valve; blocked oil passage in the converter; or blocked or restricted oil passages in lines to and from the converter. As in the case of an automobile, the oil pressure will be initially high in extremely cold weather.

A TORQUE CONVERTER is practically noiseless when functioning properly. Noisy operation may indicate a worn coupling gear; worn oil pump or oil pump drive; worn input or output bearings; or regulating valve chatter. Regulating valve chatter will be caused by air in the oil lines or cavitation resulting from using the wrong type oil.

Once the source of the operating trouble has been isolated, the remedial steps are simple and direct. Disassembling and reassembling a torque converter unit are no more difficult than doing similar work on the average transmission.

When the torque converter is installed on the equipment, it is of the utmost importance that mating engine and converter parts are concentric and square. Further, the converter itself should be anchored securely to a solid base. Otherwise, any misalignment that could develop would damage the engine, converter, or both.

What Truck Men Say

Torque converters should be bought at the time the truck is purchased, as original equipment. They can be installed on existing rolling stock, but this is not as desirable.

Torque converters are expensive and add considerably to the cost of equipment.

Torque Converter Review

Fuel consumption on long hauls is a consideration in using the torque converter, which causes

One of greatest advantages in using the torque converter is its brake saving effect, particularly with those units which have built-in downhill braking. The brake problem is acute on hauls in rough country and constitutes one of the highest maintenance items in terms of lining, etc.

THREE UNITS MUST be designed which will handle gross loads from 75,000 to 200,000 pounds and which can be used with 150 hp. engines.

Overhaul costs are reduced considerably on engines and all driving components, but sometimes the cost of maintaining the torque converter may almost equal the cost of an engine overhaul. However, this is more than offset by the other torque converter advantages.

Present versions are designed for off-highway use with loads of 10 to 20,000 board feet of logs and are best suited for a gross combination weight of over 100,000 lbs.

A torque converter allows driver to maintain better control of truck, because he can devote full time to braking and steering.

Torque converter may require a slightly longer round trip time. It could be less under some conditions, particularly if there are more changes in grade.

Due to speed differences between TC-equipped and conventional trucks, less disruption of schedules will occur in a fleet of similarly equipped trucks, not in a mixed fleet. Otherwise trucks may overrun each other.

MECHANICS MUST BE trained to service torque converters, which are sensitive units. Parts may be a problem in remote locations.

One truck distributor who has placed some 50 torque converters in off-highway trucks, mostly in mines, has this to say about applications in logging trucks:

"The proper transmissions have not as yet been designed to match the converter. It is naturally more expensive to install at present and few manufacturers want to tackle it in limited production. The converter also creates other problems which call for increased cooling and more braking. In the field installations, most trucks' cooling systems are inadequate to handle the increased cooling of the converter oil.

"The braking problem is increased because you lose some of the braking of the engine on compression. With the proper converter matched to the engine on compression. With the proper converter matched to the engine it is impossible to overspeed or lug the engine, as the converter overspeeds or stalls out, leaving the engine operating in its proper RPM range.

"The converter will come into its own when the manufacturers design a transmission with three or four speeds with proper ratios to match the converter and incorporate an oil retarding brake. This had been done by one manufacturer with some success but the unit is not designed to cover logging as it is too heavy and too expensive."

What Loggers Say

Here are random comments obtained from loggers who are using torque converters in logging trucks:

On the positive side:

- They make truck operation smoother and more economical.
- Easier to train truck drivers and less maintenance.
- Creates less engine wear.
- Helps on road maintenance, because there is less "wheel-bounce" in getting away from the landing and in shifting gears. This minimizes wash-boarding.
- A lot more life from tires; there is no chewing.
- Less wear on drive-line components.
- Lugging is eliminated.
- They're better on steep grades.
- Fewer brake adjustments and drum replacements.

On the negative side:

- Present version of torque converter does not have the flexibility of geared transmissions, to meet wide range of road conditions, grade changes, etc. encountered on most

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All Luber-finer Models may be used on engines larger than recommended; however, the Pack life will be proportionately shorter.

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logging operations.

- Too much exposed "plumbing", dangerous at landings.
- Hard to keep cool in hot weather.
- Must be redesigned to be practical on all jobs.
- Additional gears are required—more speeds needed. (This applies to one specific make.)
- Uses about 7-10 percent more fuel, but this is offset by other advantages.
- Still more braking effect is needed. Need an oil brake giving the characteristics of hydraulic retarder action.

Manufacturers of Torque Converters

The following listing gives details of torque converters manufactured for all industrial uses, including trucks.

There are three basic types of torque converters.

These are the single stage, the two stage and the three stage. Respective manufacturers claim various advantages for each type. Basically, the single stage is simpler, while the multi-stage units offer other benefits.

Single stage TC's are made by the following manufacturers: Western Gear Works, Seattle, Wash.; Clark Equipment Co., Transmission Div., Jackson, Miss. (through the Torcon Corp., Ashtabula, Ohio); Schneider Manufacturing Corp., Muncie, Indiana (a division of Westinghouse Electric Corp.); Long Manufacturing Div., Borg-Warner Corp., Detroit, Mich.

The Allison Division of General Motors Corp. at Indianapolis makes a single-stage multi-phase torque converter. In this case, the stators are free wheeling.

The three stage TC is made by the Twin-Disc Clutch Co., Hydraulic Div., Racine, Wisconsin.

Because a torque converter must be matched with the engine with which it is teamed, all manufacturers furnish selection charts. These indicate hp. and RPM at stalling from engine curves. The proper size TC, expressed in terms of diameter, is selected according to where these two points coincide. Special engineering consultation may be needed for unusual applications, as in logging.

The following listing has been compiled from data furnished by manufacturers:

SCHNEIDER MANUFACTURING CORP., MUNCIE, INDIANA.
(A Division of Westinghouse Electric Corp.)

Companies licensed under the Schneider system include: The White Motor Co.; Clark Equipment Co.; Torcon Corp.; Western Gear Works; R. G. Le Tourneau, Inc.; The Bready Tractor & Implement Co., Warner Gear Div., Borg-Warner Corp.

The Schneider TC is available in the following diameters: 14D, 14D, 16D, 17D, 18D and 19D. These will match engine hp.'s from 18 to 600 and RPM's from 1000 to 3000.

These units are available with the option of Locked Stator (DFRST), Free Wheeling Stator (DF) and the Lock-up Feature (DFL). The Schneider TC can be furnished with a direct drive for added economy, when operating at higher speeds.

Schneider also manufactures a Hydraulic Turbo Brake. This does not eliminate the mechanical brake but improves braking power at higher speeds. Mechanical brakes are used only for stopping and holding purposes.

WESTERN GEAR WORKS, SEATTLE, WASH.
(Uses the Schneider system).

TSD Series Torqmaster. A bevel planetary two speed transmission, in sizes TSD-2 and TSD-4 for horsepower ranges of 150 to 550. It is used to supplement the torque range of a torque converter for log yarders, log loaders, shovels, cranes, and oil drilling equipment. Can be quick shifted by air under full load for constant, even pull on the line.

200 Series Torqmaster has a Western single stage hydraulic torque converter and a two speed bevel planetary transmission in a single housing. This transmission has capacity for 150 to 300 HP and features engine wise or counter-engine wise rotation of the drive sprocket with a fixed 3:1 reduction, for easy application to repower yarders and cranes, or for new equipment.

200 Reversing Torqmaster utilizes the Western torque converter with a bevel planetary reversing transmission; giving an air shift forward and reverse. Designed for chain sprocket drive with right or left hand chain opening. Capacity is 150 to 300 HP for use with locomotives and locomotive cranes.

Torqmaster D-8 Tractor Converter has been designed to adapt to a standard D-8 tractor with a high speed, higher horsepower diesel engine. The converter package combines a disconnect clutch with a Western torque converter in a housing which is designed to fit over the spring hanger. Greater horsepower and performance can be had without additional maintenance due to the cushion and anti-shock of torque converter drive.

Torqmaster 400 Series Transmission offering smooth anti-shock drive for heavy-duty trucks and earth movers, has four speeds forward and two in reverse, supplemented with a Western torque converter. Ratios are designed to give peak torque converter performance with shifting under full load. Gear selection by the operator is simplified through the use of hydraulic valve designed by Western Gear. Converter or "lock through" drive by operator control for peak efficiency. Used on high speed diesel engines 300 to 400 HP. Production models will be available in 1956.

The hydraulic system has been designed to reduce to the minimum any external piping. A heavy-duty positive displacement gear pump furnishes hydraulic pressure and supply, for actuation of transmission clutches, and brakes; for the actuation of a converter lock-through clutch; and supplies hydraulic fluid to the torque converter.

An integral sump retains the supply of oil for hydraulic and lubrication medium. Oil is cooled by a heat exchanger connected to the engine water system.

The transmission arrangement consists of a primary and secondary planetary gear set, operating in rotating cages. Actuation of each gear selection is made by a combination of brakes and clutch. Proper porting of oil passages required in each gear selection is controlled by an ingenious control valve designed by Western Gear.

ALLISON DIV., GENERAL MOTORS CORP., INDIANAPOLIS, INDIANA.

Manufactures a complete line of Torqmatic Converters for off-highway use. A Torqmatic Brake is also available. These are supplied as factory-installed equipment in the Euclid Log Hauler, which features a No-Spin differential. Allison Torqmatic units can also be installed on other trucks, preferably at the factory. Other Torqmatic converters are available for other industrial engines.

The Series Numbers designate the approximate gross engine torque absorption capacity of the converter at 1800 engine RPM in approximate pounds feet. Six Series are available.

200-300 Series. For 40 to 150 hp. industrial and automotive engines. These handle RPM's from 3000 to 2600.

400 Series, 600 Series and 800-900 Series. These are made to match engines up to 400 hp.

CRT-3330 Transmission, for 60 to 130 hp. engines. This incorporates the Torqmatic converter, Torqmatic planetary range-gearing and transfer gearing drop box. It is used on loaders, graders and fork lift trucks.

The Euclid Log Haulers commonly used are the 63 TD and 64 TD models. These are off-highway units.

Euclid Log Haulers with Torqmatic Converters are presently being used successfully in British Columbia, California, Oregon and Washington.

The Torqmatic Brake is a hydraulic brake in the drive line, for heavy duty, off-highway

(Continued on page 130)

Torque Converter Review

USS Gerrard ties ANYTHING you've ever seen

Job-site Delivery of Lumber to Complete Prefabricated Houses

Job-site delivery of lumber is a far cry, in size and weight, from the two complete prefabricated houses which the larger truck is carrying. In both cases, however, USS Gerrard Steel Strapping was used to get the material to its destination safely and undamaged.

Look at these advantages of versatile USS Gerrard Steel Strapping:

- USS GERRARD Strapping, Round or Flat, is available in a wide range of sizes—tailored for every tying application, from pallets of bricks to huge truckloads of assorted lumber.
- Lumber packaged with USS GERRARD Strapping can be handled in *¼ the time* it takes to handle loose lumber.
- USS GERRARD Round Strapping costs about *40% less* than any other form of metal reinforcement.
- With packaged lumber, one inventory is enough. Grades, sizes, and varieties can easily be kept together—can be retabulated at a glance.
- USS GERRARD-strapped lumber is virtually pilfer-proof.
- Single-source buying of both Round and Flat Steel Strapping reduces freight charges and paper work.

Bring your packaging and tying problems to USS GERRARD. Our engineers are here to help you solve them—at no cost to you.

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"Fingertip" control pilots every Zidell Drive to greater savings, higher production!

Zidell Electric Log Carriage Drives are of the finest design, materials and workmanship . . . yet will withstand rigors of rough industrial service. Amazing "Fingertip" control and a special exciter system permit extremely smooth acceleration and deceleration resulting in longer cable life and less maintenance on all moving parts! This coupled with less fatigue for the sawyer and constant command of carriage speed and direction of travel mean greater savings and higher production for you!

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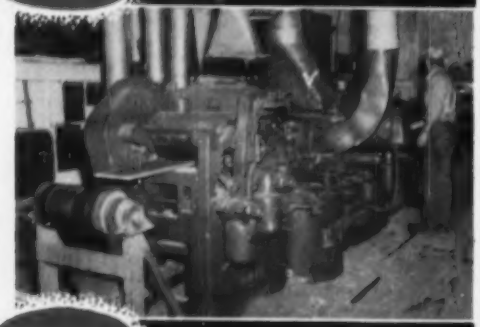

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And, Zidell for Resaw Feed Rolls, Conveyors, Transfer Chains, Woodworking Machinery, Paper Mill Machinery, Plywood Lathes or any application where variable speed, constant torque and extreme flexibility are necessary.

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Industry Shares Radio

(Continued from page 77)

Surdam thinks that someday co-ops may outnumber the individual licensees. He believes the day will come when for all woods operations it will become mandatory to have available a rapid reliable means of getting an emergency message back to headquarters. When that day arrives, the Radio Committee hopes to have properly evaluated and foreseen the demand for channels in time to accommodate the industry's need.

ROBERT OLIN, LONG active in proclaiming, protecting and advancing the use of radio communication in the forest industries, states that attempts to share one remote base station with one or more other firms equally licensed has not yet met FCC approval, but the matter is currently up for decision.

In such a case two or more parties license their own radio systems—including the control link to the mountain top and automatic repeater base station. This type of sharing can be carried on where two or more areas on opposite sides of one high mountain can be served, even though their other tree farming-logging interests do not coincide in the same area.

Larger operators invariably require more clear time due to their complex operations than do small operators, according to Olin. Smaller operators grouped together in co-ops provide additional channel space in local areas for the large operators. This segregates the two kinds of traffic. Both systems thus become much more efficient users of the channel space.

Olin also gives a longer look ahead. "There seem to be tremendous possibilities in cooperative use of more expensive and elaborate systems that could be controlled or transmitted over longer distances by private microwave circuits. Thus, with one backbone circuit, from along some route within a region of interest, which may be a hundred miles or more, many operators could feed in with their mobile radio systems so that they could reach common carrier circuits or other parts of their operation using the microwave for the long haul.

"**THESE RULES FOR** microwave and other fixed station services must be reviewed carefully by the Commission to make certain that they remain private carrier circuits and not common carrier or limited carrier circuits, covered by other rules and regulations.

"There are tremendous possibilities of these systems being set up in the West, in the South, possibly along the Appalachian region and in the Northeastern timber growing states. Reduction in the cost of purchasing microwave will aid rapidly in developing these system possibilities. Our asso-

ciation is looking very actively to the future in this field."

The other very impressive future operation is in use of television cameras located at convenient mountain tops, surveying timbered areas, believes Olin. All of these cameras will require a means of transmitting the picture they accumulate on the mountain back to some central point, maybe 20 or 30 miles away. Here, again, microwave co-ops may make it possible for one operator to survey constantly the fire situation over several operators' areas by means of microwave and television camera.

In the following accounts, THE LUMBERMAN has prepared staff reports on how several of the newer co-ops function. A tabulation of the co-ops currently organized is also included.

WASHINGTON

Evergreen Loggers Radio Assoc.

FIRMS WHICH HAVE organized Evergreen Loggers Radio Assoc. at Stevenson, Wash., include Hegewald Timber Co., Stevenson Plywood Corp. and Crown Zellerbach Corp. (Beacon Rock Tract) all of Stevenson; Lehman Logging Co., Underwood and Carson Lumber Co., Carson. It was organized in 1954 and cut its system in the following spring.

Cooperatively owned and operated facilities include a main base station, with repeater station, setting at 3300 ft. elevation atop a mountain about 10 miles from Stevenson; a control station (working through the repeater) at Stevenson Plywood's headquarters office; and a remote control unit, located at Hegewald Timber office and wire-line connected to control station. This is all GE equipment.

By mid-summer members were operating 16 mobile and three portable two-way sets and contemplated adding more units. Other operators will be accepted as members, each having its own mobile sets. It's also intended that the Evergreen co-op will add at least one more base station. According to R. M. Hegewald, president, Hegewald Timber Co., this radio system now effectively serves communications needs of member operators working on each side of the Columbia River, an area about "35 to 40 miles square".

DURING FIRE-WEATHER woods operators must keep watchmen, equipped with communications facilities, at logging operations until 8:00 p.m. The co-op radio provides a means for member firms to do this without each keeping an employee on special duty to receive calls.

Someone in the office of Stevenson Plywood or Hegewald Timber is on duty throughout the scheduled radio hours. This provides maximum system service without placing undue burden on personnel of either of the

(Continued on page 118)

DISCIPLINED POWER

with a GM DIESEL TORQUE CONVERTER

All the smoothness and flexibility of steam, but with the compact, easy-to-handle efficiency of Diesel Power at its best . . . GM Diesel Power!

Gunderson Bros. has supplied many Northwest Logging Firms with GM Torque Converters for loaders and yarders. Shown is equipment of Hagewald Lbr. Co., Stevenson, Wash. Operator, Kenneth A. Fuller.

The Big Trend all through the Woods!

Power flows like a mighty river, without jerks and strains on power unit or other equipment . . . when applied through a GM Torque Converter. Ends shock loading, with all its wear and tear on equipment, especially lines . . . ends many on-the-job delays for repairs. Often saves manpower, too.

Even with no actual increase in power delivery, the GM Torque Converter increases the "work capacity" of loaders one-third or more . . . improves the performance of other heavy equipment as much. And with compact GM Diesel "unit design" you can have much more power in less space with Torque Converter included!

- **MORE "USEFUL" POWER** — Better Application to Load
- **ENDS SHOCK LOADING** — Saves equipment, maintenance cost . . . reduces shut-down time
- **INCREASES PRODUCTION** — through smoother operation
- **GREATER SAFETY** — Less risk to crews from suddenly strained equipment
- **COMPACT DESIGN** — Permits more power in less space
- **BETTER LOAD CONTROL** — holds load to power source at all times

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Hanna Cylinder Power is being used more and more throughout industry to simplify the actuation and control of machines and equipment—to provide smooth, dependable power wherever controlled push, pull, lift, press or clamp action is needed.

In hundreds of simple applications Hanna Cylinder Power has eliminated or reduced manual effort, resulting in greatly increased production, and lower costs. Similarly, machines and equipment using Hanna Cylinder Power are assured of long, dependable operation because of the quality and precision built into Hanna products.

Hanna Cylinders and Valves are available in a broad range of sizes, capacities and mounting styles—for air operation up to 250 p.s.i., and hydraulic to 1500 p.s.i. Put them to work for you— call your Hanna Representative (see Yellow Pages in *your* telephone directory) or write us direct.

Send for
Catalog 750A—Air Cylinders to 250 p.s.i., Hydraulic to 750 p.s.i.
Catalog 236A—Air and Hydraulic Cylinders to 110 p.s.i.
Catalog 233B—Hydraulic Cylinders to 1500 p.s.i.
Catalog 254 —Air and Hydraulic Valves

Hanna Engineering Works

1761 Elston Ave., Chicago 22, Illinois

organizations equipped with base station control facilities.

One director of the co-op believes the optimum maximum of mobiles to be somewhere between 60 and 150. The maximum, he says, will be determined somewhat by the topography, location of operator members and the use each makes of his facilities.

CONSTITUTION OF EVERGREEN Loggers Radio Assoc. specifies that membership is open to mill owners, independent loggers, forest land owners, and other firms or individuals eligible under FCC rules. Admittance is subject to the approval by a majority of the group's trustees, payment of membership fees and completing a standard contract. Transfer of membership cannot be made without approval of the trustees.

A member may be suspended from active participation in association affairs and use of its facilities by a majority vote of trustees for (1) nonpayment of three months expense assessments and/or (2) flagrant or repeated violations of association license and/or by-laws.

A MEMBERSHIP FEE of $200 and capital fund deposit of $700 were provided by each of the five charter members to be used by the group to purchase, install and keep in permanent repair central radio facilities. The capital deposit is repayable to members on amortized basis out of monthly or other assessments. Each new member shall make a capital fund deposit in such amount as to equal the current balance of the capital fund deposit of other members.

The board of trustees is specified as to the governing body. There are five trustees, all elected by majority vote of members at annual meeting to serve one year or until succeeded. Association members, by calling a meeting for the purpose, can by two-thirds majority remove any trustee from office; or can, at the annual meeting, change the number of trustees to 3 or 7 by majority vote.

The board adopts rules for radio operation and details service that members shall render, and all rules are binding on all members.

Officers and Frequencies

PRES.: Ted Lehman, owner-manager, Lehman Logging Co., Underwood,

VICE-PRES.: R. M. Hegewald, Pres., Hegewald Timber Co., Stevenson,

TREAS.: Henry Mertz, manager, Stevenson Plywood Corp., Stevenson,

SEC.: Gordon Collard, resident forester, Crown Zellerbach, Beacon Rock Tract, Stevenson.

BOARD OF TRUSTEES: Officers Ted Lehman, Henry L. Mertz, R. M. Hegewald; and George H. Schroeder, assistant chief forester, Crown

Zellerbach Corp., R. J. Salvesen, Carson Lbr. Co.

FREQUENCIES: Base station: 158.31 MC
Repeater station: 72.90 MC
Control: 74.14 MC

CALIFORNIA

The Pacific Coast Co.

THIS RADIO SYSTEM, shared between The Pacific Coast Co. and Willits Redwood Products, Willits, Calif., and Ruelle, Inc., (trucking contractors for Willits Redwood Products) uses General Electric Corp. equipment. It consists of 4 remote control sets, 2 in the office of The Pacific Coast Co., one at Ruelle's, and one at Willits Redwood Products. A private leased wire connects the remote control units with a transmitter on Laurel Hill in Willits. Transmitter there is an ultra-high frequency, control line, which activates the receiver and transmitter comprising the relay station located on Mt. Cahto, west of Laytonville. Equipment there consists of two identical units made up of receiver and transmitter in each unit.

A message is sent via private telephone to Laurel Hill and from there transmitted to the Mt. Cahto relay station on 456.55 megacycles. It receives the message and re-transmits it on 49.58 megacycles to the mobile units. From the mobiles a message is broadcast on 49.58 megacycles back to the relay station, which re-transmits it to Willits on 451.55 megacycles.

Power is supplied to the Mt. Cahto relay station by the local utilities company. If power fails, a standby automatic switch starts a gasoline powered generator, with a fuel reserve for 12 to 15 days.

CALIFORNIA'S STATE DIVISION of Forestry can also utilize the system. The lookout on Mt. Cahto during the summer has a microphone at the relay station.

The GE mobile units are low band VHF transmitters which are frequency modulated sets operating on 49.58 megacycles.

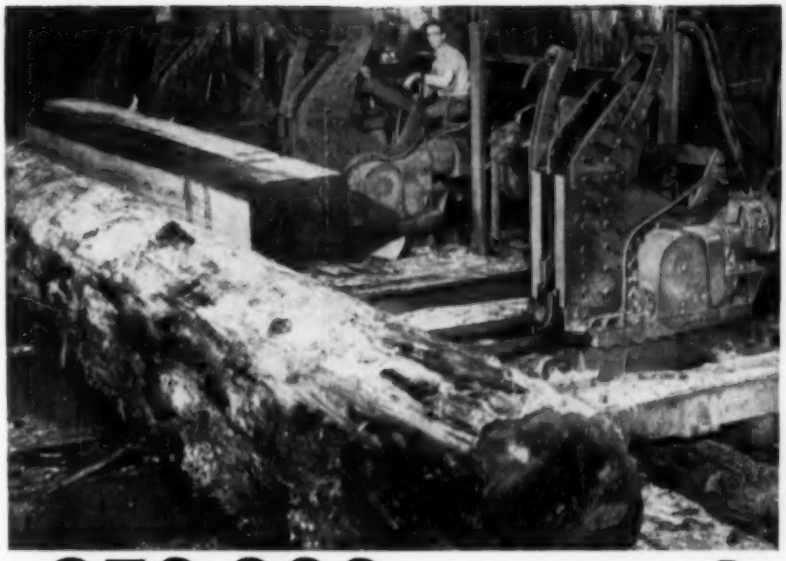
Seventeen mobile units are used. One is in the Chief Forester's automobile. Seven are in various pickup trucks and 9 in logging trucks of The Pacific Coast Co.

Willits Redwood Products operates 8 mobile units—one in an automobile, one in a personnel bus and 6 in pickups.

Ruelle, Incorporated, operates 8 mobile units in pickups and 5 in logging trucks.

There is little conflict between the three companies who share this radio system, which replaces an old fashioned party line.

Maximum range of this radio system is approximately 110 airline miles from the transmitter. It has reached northwards to a mobile unit in Arcata, Calif., and southwards to one on the



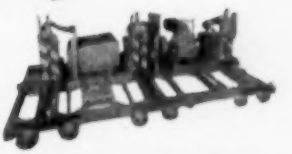
650,000 ft. a day!

easy cutting with a Monarch carriage team

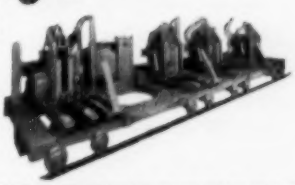
The good grade of lumber produced at Coos Bay Lumber Company, Coos Bay, Oregon, is an interesting story, when you consider these two facts: (1) the best logs go to the plywood mill; (2) the logs that go to the sawmill are the roughest, yet must be run through at top speed to maintain their 650,000 board-feet-per-day average.

The sawmill crew feels that this work is easily accomplished. They use two Monarch extra heavy duty, air-electric carriages, operating 16 hours a day without a mechanical failure in years.

ABOVE:
Monarch High-Speed Air-Electric Carriage One-man operated, or sawyer controlled.
Sawyer controlled model sets 6 to 12 positions with push button control, or an infinite number with automatic selector. Opening is 36 to 72 inches. All Monarch carriages use chain driven knees and headblocks which operate at high speed. This, plus precision positioning and setting is a tremendous asset to high production mills such as Coos Bay Lumber Company.



AIR-DOGGED, AIR-TAPER. Openings 48" to 72". Non-defacing board dogs in center of each knee hold cants or small logs, top & bottom. Knees taper 2", 4" and 6".



EXTRA HEAVY-DUTY Openings 60" to 84", air-dogged, electric taper. Frame is heavier and more rigidly braced than normal operation requires.

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Forge & Machine Works Inc.
2130 N W YORK ST PORTLAND 10, OREGON

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2130 N. W. York St., Portland 10, Ore.
Gentlemen:
Please send me additional information on carriages.
Name_____
Address_____
City_____ State_____

Waldo Grade in Marin County. These are extreme maximum ranges under ideal conditions. If one mobile unit cannot talk to another, due to type of terrain, the base station in Willits relays messages from one mobile to another.

THIS COOPERATIVE SYSTEM was installed primarily for forest fire fighting, plus dispatching of emergency equipment in case of accidents on the highway, and facilitating dispatching of trucks and logging equipment.

This past summer the mobiles reported six small forest fires to the base station before the fires had been reported to the California State Div. of Forestry.

Frequently the logging trucks have reported accidents on the highway. This results in the prompt dispatch of ambulances and tow trucks, as well as prompt notification of the accident or blocking of the highway to the California Highway Patrol.

The cooperative radio system has reduced accidents by logging trucks on narrow, winding roads. Each truck knows who is coming out of the woods and can be on the lookout for this truck on the logging road. Previously there had been accidents between trucks meeting on curves.

Call letters assigned by the Federal Communication Commission are KMO 25. The number KMO 24 has been assigned to the relay station on Mt. Cahto. The entire radio system has been authorized by the FCC.

MONTANA

Charles Jellison Logging Co.

THE INLAND EMPIRE took its first step in starting a radio co-op this year when logging contractor Charles Jellison of Kalispell, Mont., got together a group of truck operators to join in a "share-the-wave length" organization. Jellison, a member of the national board of Forest Industries Radio Communications, has long been an outspoken advocate of two-way radio communication for the forest industries. He is pioneering the new development in a sparsely settled region ideally suited for radio communications.

Jellison contract logs for Stoltze Land & Lumber Co. of Columbia Falls, which has a radio system. He has long felt the need for linking the contract haulers in his area, who do 90 percent of the hauling, some on 80 mile hauls. Radio seemed to be the answer in securing better dispatching of trucks and in centralizing and coordinating activities. On the public service front, it could also render invaluable service in emergencies, such as highway or woods accidents, forest fires and similar catastrophies.

The Parkway Truck Stop was set up as a central dispatching station for all the log haulers. It will be the nerve center for the system, operating from 7:00 a.m. to 10:00 p.m. From it the dispatcher will relay his messages, on a 49.30 MC frequency, through the transmitter on top of 6700-foot Big Mountain, near Whitefish. A 100-mile radius can be reached.

JELLISON HAS OBTAINED the FCC-assigned frequency for this system and installations currently are underway on the Big Mountain central transmitter. All equipment is GE, obtained on lease arrangement. Mobiles have been installed in 37 logging trucks, soon to be increased to 45. These are sub-leased at $15 a month on a non-profit basis, to the truck operators. Equipment costs will be amortized in 5 years. The transmitter on top of Big Mt. will be for sale by GE at their price to Jellison after 5 years.

Operators furnish their own maintenance. Jellison states that he has requests on hand for 20 additional haulers who want to share the channel.

To energize the Big Mt. transmitter the power cable was extended in a trench 10,000 feet from an existing ski lift setup and went up an additional 1700 feet in elevation.

The mountain top will be the antenna center for seven Flathead valley short wave radio transmitters, who will share the cost of extending the

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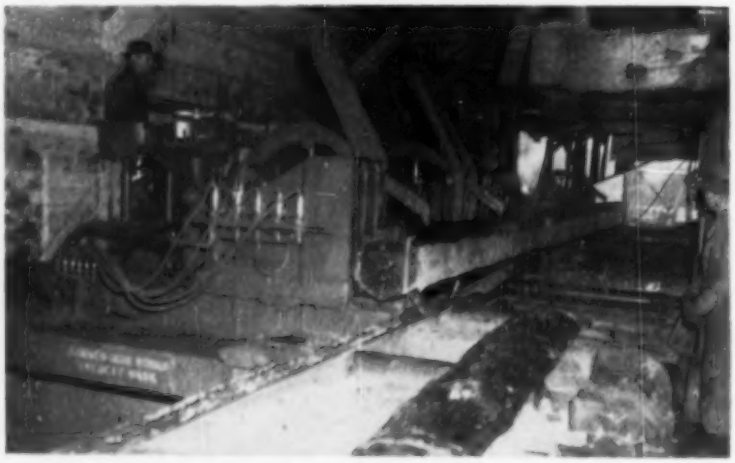
- Completely Air Operated . . . Setworks, Dogs, Blocks, Cushions and Controls.
- Sizes available for both Pine and Fir Mills.
- Knees are of cast steel, box section construction.
- Tong-type, non-defacing dogs.
- Two-stage, Dog Extension System with minimum of moving parts.
- Trout-type setworks driven by "Step, start and reversing Air Motor"—All clutches eliminated.
- Multi-stage taper cylinder and cushion cylinders insure maximum number of taper settings and offer constant cushion.
- Safety Stops insure against dogs passing saw line.



Sumner's completely air-operated one-man, Dog Carriage now installed at Fortson Mill Company, Fortson, Washington.

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power supply. In addition to Parkway Truck Stop, these include Montana State Highway maintenance, Flathead Electric Co-op., Stoltze Land & Lumber Co., Flathead County Sheriff, Kalispell Propane Co. and Flathead National Forest. Each will have a separate transmitter, in individual small houses.

Cooperative Radio Systems

(Data obtained from Forest Industries Radio Communications)

ALEXANDER STEWART LUMBER CO., Prineville, Ore.
Organized Oct. 1949. Members include BCK Co., Inc., Prineville. Operating Frequency 153.35. Has 1 base station, 8 mobiles (Alexander), 15 mobiles (BCK). Equipment is Motorola.

BOISE PAYETTE LUMBER CO., Boise, Ida.
Organized June, 1953. Members include MacGregor-Triangle Co., Boise; J. I. Morgan, Inc., New Meadows. Operating Frequency 49.38 mc; control 957.90 and relay 954.30. Has 3 base stations (B-P), 2 (Morgan) and 1 (MacGregor); 4 mobiles (B-P), 5 mobiles (MacGregor), 7 mobiles (Morgan). Equipment is General Electric and Link Radio.

A. H. BRIX LOGGING CO., Naselle, Wash.
Organized July, 1953. Members include Wirkkala Bros. Operating Frequency 49.58. Has 1 base station (Brix) and 1 base station (Wirkkala). Has 4 mobiles (Brix) and 6 (Wirkkala). Equipment is General Electric.

WM. ENDICOTT LOGGING CO., Prineville, Ore.
Organized Oct., 1952. Members include Pine Products Corp. Operating Frequency 49.30. Has 1 base station and 7 mobiles (Endicott) and 6 (Pine). Equipment is Communications Co., Inc.

EVERGREEN LOGGERS RADIO ASSOC., Stevenson, Wash.
Organized Dec. 1954. Members include Stevenson Plywood Corp., Stevenson; Carson Lbr. Co., Carson; Negewald Timber Co., Inc., Stevenson; Crown Zellerbach Corp. (Beacon Rock Tract); Ted H. Lehman, Underwood. Operating Frequency 158.31; relay 74.14 and control 72.90. Has 1 base station, 14 mobiles, 1 relay and 1 control. Equipment is General Electric.

CHARLES J. JELLISON, Kalispell, Mont.
Organized June 1955. Members include contract hauling truck operators. Operating Frequency 49.30, control 451.55 and relay 456.75. Has 1 base station, 1 control and 1 relay; 45 mobiles. Equipment is General Electric.

QUINAULT RADIO USERS ASSOC., Elma, Wash.
Organized May 1952. Members include Mayr Bros. Log. Co.; J&H Logging Corp.; McKay-Carlen; John Early; T. J. Lonac. Operating Frequency 49.34. Has 1 base. Equipment is Motorola.

SEXTON FOREST INDUSTRIES COMMUNICATIONS, Grants, Pass, Ore.
Organized June 1952. Members include 16 local companies. Operating Frequency is 153.23, control 451.15 and 456.15 relay. Has 1 base station, 1 control, 1 relay and 45 mobile units. Equipment is Motorola.

SOUTHERN OREGON CONSERVATION & TREE FARM ASSOC., Medford, Ore.
Organized Aug. 1950. Members include 35 local companies. Operating Frequency is 153.17, control 72.10 and relay 75.46. Has 1 base station, 1 control, 1 relay and 85 mobile units. Equipment is Motorola.

TREE FARMERS, INC., Missoula, Mont.
Members include Intermountain Lbr. Co. and Western Mt. Lbr. Co. Operating Frequency 49.46, control 73.18 and relay 74.58. Has 4 base stations, 9 mobiles. Equipment is General Electric.

TWIN FEATHER MILLS, INC., Kamiah, Idaho.
Organized July 1952. Members include Schmidt Bros. of Greer. Operating Frequency 49.22. Has 3 base stations, 9 mobiles (Twin Feather) and 5 mobiles (Schmidt Bros.) Equipment is General Electric.

WEST TACOMA NEWSPRINT CO., Steilacoom, Wash.
Organized Sept. 1953. Members include Dougherty & Zion. Operating Frequency 49.54. Has 1 base station (Dougherty) and 3 (W. Tacoma) and 2 mobiles (Dougherty) and 2 (W. Tacoma). Equipment is General Electric.

WILLITS REDWOOD PRODUCTS CO., Willits, Calif.
Organized Nov. 1954. Members include The Pacific Coast Co., and Ruelle, Inc. Operating Frequency 49.58, control 456.55 and relay 451.55. Has 1 base station and 17 mobiles (Pacific Coast) 8 (Willits) and 13 (Ruelle). Equipment is General Electric.

"Very pleased with our new low cost DINGS METAL DETECTOR"

...says leading West Coast Lumber Manufacturer...

● As proof of the time and money-saving ability of DINGS Universal Series Metal Detectors in the lumber industry, we quote from a letter received from a leading West Coast lumber manufacturer:

"We recently installed a Dings Metal Detector on a conveyor belt leading from the Log Barker to our Hog . . . are very pleased with this equipment as it will detect small metal particles such as broken cotter keys and nails, as well as large pieces of metal.

"We feel that this Detector not only prevents metal from getting into our Hogs but also warns of any needed repairs on our Log Barker.

"Many times the Detector has located a broken bolt or pin from conveyor chains, enabling us to find the location of the missing bolt or pin, and repair the chain before it parted . . . thus preventing serious damage and also preventing costly machinery down-time."

Extremely simple in design, installation and operation, the new low cost Dings Metal Detector requires virtually no attention. It is merely necessary to plug the unit into any single phase outlet, place the Search Coil around conveyor belt, and turn on the switch . . . and you have provided protection against tramp metal damage to machinery and product quality at an extremely low cost.

Mail the coupon today for further details.

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Please rush further details about the new Dings Universal Series Metal Detector.

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By locating our factory at Eugene, Oregon, close to the center of the lumber industry, we can offer direct factory - to - mill service in custom - made saws—good saws made on the Pacific Coast.

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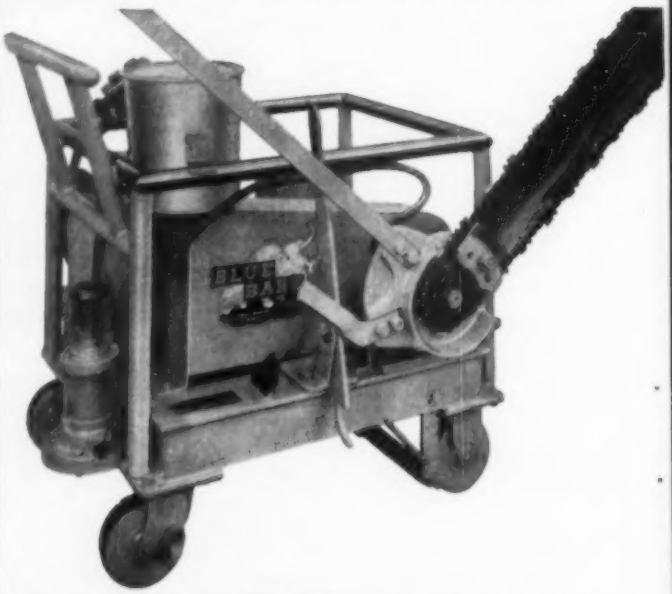

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Foresters Battle Porkies

(Continued from page 79)

cupine is also a good forester—he selects the best "crop" trees. These are the straight, dominant ones which are making the most growth. Selectively cut and virgin pine forests show the least damage; older clearcut areas are more heavily attacked.

SIGNS OF THE PORCUPINE'S presence in a forest are:

Trees in seedling stage clipped off close to the ground line.

Girdling or partial girdling of small sapling trees within a foot or two of ground line.

Girdling in the tops of pole-sized trees. A dying top may be the first sign. Many badly deformed or forked trees result from this type of damage.

Damage is usually worse in the spring and the fall. When it gets really cold in winter a porky may remain comparatively inactive in a tree for as long as 40 days.

Based on a total of 480 man days spent in studying the habits of the ambulatory tree killers and investigating damage, Lofgren recommends certain control techniques. These are modifications of techniques developed by the Fish & Wildlife Service.

Shooting is effective, but must be done on an organized basis. J. Neils has put out a circular to hunters appealing for aid in shooting. In some areas, such as Lakeview, Ore., a shooting contest has been held, with a bounty paid for each porky's nose brought in. The U. S. Forest Service, which has likewise been plagued with porkies in certain areas, has also cooperated in shooting programs.

BUT PORCUPINES ARE hard to kill by shooting. They're as tough as their meat —and have been known to walk off even when given up for dead. For best shooting results, it is recommended that it be done when porkies migrate, which seems to be a winter phenomen.

Migrations may be seasonal and feeding. Feeding ones follow lines of least resistance, like streams, ridges, etc. Seasonal migrations take the animal from colder areas to south slopes or milder regions.

Most intensive damage on the J. Neils tree farm has occurred along stream courses, around abandoned homesteads, around springs and sheep and cattle salt licks, along dry washes or gulches, along the top of southern exposures of ridges and along trails, car roads and abandoned railroads.

Lofgren has obtained best results from baiting. To make this effective, he had to find out how the porcupines spent their time and what areas they frequented. Baiting technique capitalizes on the porcupine's fondness for salt.

"Porkies have favorite haunts. In our areas we found these to be old abandoned buildings and rest trees. By baiting these systematically you can get good results. We have baited as many as 45 porkies in one rest tree," says Lofgren.

Bait blocks should be placed in dens, rest trees or under old abandoned buildings. Rest trees have been used most effectively in the J. Neils program. In winter snows porcupine tracks will lead to these places. Tracks are a wide path, four claws on front and five on rear feet, rear track is 3 to 4 inches long.

THE REST TREE, used by the porky in his migrations, is a young tree with "wolfy" characteristics. Generally it hasn't been girdled in the top, but a few limbs may have been girdled. Many twigs may have been eaten off, giving the tree an open appearance. The tree may be 4 to 20 inches in diameter and the bark may be worn smooth from repeated climbings. Look for droppings under the tree. Spot a favorite rest limb and nail the bait block, cavity up, on the tree trunk so top of block is about 8 inches above limb. Block should be about 16 feet above the ground.

In old buildings, nail the bait block under the buildings, in cellars or beneath the floor areas. Old abandoned homesteads on the J. Neils tree farm have been a prolific source of porcupine victims.

The den is usually situated in rim rocks or other rocky areas. These signs indicate a procupine home: capsule shaped droppings, in large quantities on the den floor and scattered well outside the den; quills on the den floor or near entrance; in summer, rank vegetation outside the den as a result of increased fertility.

ARROW POINTS to bait block placed about 16 feet above the ground on the rest tree.

Place the bait block on a tree limb and push into the den as far as possible.

On the J. Neils tree farm baiting has been carried on at 281 stations. Average number of stations maintained yearly is 150. Baiting stations are as follows: 29 dens, 11 old buildings, 9 tie or debris piles, 226 rest trees and 6 log or stumps.

Trapping can be tried. It is most effective if done near something the porky wants, like salt, a good garden or orchard, etc. But the porcupine is a sloppy walker and can catch his belly or his tail as readily as his foot. A number two trap is best. Trapping is comparatively costly.

Cooperating in the control program on the J. Neils tree farm have been the U. S. Forest Service, Bureau of Indian Affairs, Fish & Wildlife Service, Soil Conservation Service, University of Washington, State Division of Forestry, local newspapers, the Mt. Adams and Glenwood Cattlemen's Assoc. and the Mt. Adams Fish & Game Club. All have assisted in baiting.

Here's the Culprit!

The yellow haired porcupine (Erithezon epixanthum) occurs from the Great Plains westward to the Pacific and from Alaska southward in the Rocky Mts. to southern Arizona. Outer portions of guard hairs are olive yellow.

Four-inch deep ruff of quills and hair makes animal look like bear cub, but top weight is about 25 pounds. Tail is short and club-like; it is principal defense weapon and serves as fifth leg in climbing.

Eyes are bead-like and black, reflect no light at night. Ears are small, almost hidden in fur. Legs are short. Animal has a pigeon-toed walk. Heavy wide incisor teeth, which are literally wood chisels, have outer enamel colored yellow.

An average adult porcupine has 30,000 quills. Sharply pointed tip of each quill has hundreds of microscopic scales that act like barbs on a fish hook. Quills can be raised or lowered, but not thrown. Porcupine slaps an adversary with quill-studded tail. Barbed points are driven into flesh and quill is pulled from base.

The porcupine is a solitary animal and nocturnal in his habits. Under forest conditions they reach a density of about one every five acres.

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MURCO WASTEWOOD CHIPPERS

MURCO Wastewood Chipper installed in Weyerhaeuser Timber Co. mill, Raymond, Washington.

MURCO 75 Mechanical Feed Wastewood Chipper installed in Allison Lumber Co., Bellamy, Alabama.

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The 75" Mechanical Feed Wastewood Chipper, which when operated at 500 RPM and set to cut 5/8" to 3/4" chips will produce approximately 10 cords per hour.

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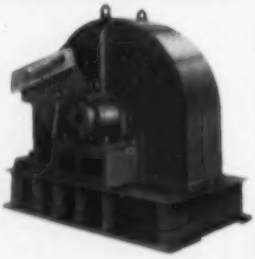
3 SIZES

56", 64" and 72" diameter discs.



The most versatile, flexible chipper design now available to chip producers, providing quantity production of quality-size chips.

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Specialists Call Halt

to budworm spraying project after seven-year program removed most traces of tree-killer

AERIAL SPRAYING WARFARE against the tree-killing budworm, waged for seven years in Oregon and Washington at a cost of $4,045,000, has proved so successful insect specialists have recommended its discontinuance next year.

This report highlighted the annual meeting of the Pacific Northwest Forest Pest Action Committee in Portland, Ore., in October. Chairman Robert L. Furniss, U. S. Forest Service, of the spruce budworm subcommittee advised that a DDT spray program next Spring does not appear necessary.

The pest action body re-elected Ernest L. Kolbe, Western Pine Assoc., Portland, chairman for his eighth year, and re-elected Norman Bjorklund, Industrial Forestry Assoc., Portland, secretary.

Some 543,000 acres are still infested with budworms, which devour needles of the Douglas fir, but only 40,000 of this amount has heavy infestation.

Some 2,276,000 acres were infested at the peak of the attack in 1949. In seven seasons planes covered 3,840,000 acres at a cost averaging $1.06 an acre. The budworm kill averaged 98.2 percent in the cooperative project, in which private timber owners, the two states and the federal agencies participated. Less than one percent of the vast area required respraying.

NATURAL FACTORS WHICH help to check the insect most of the time have regained ascendancy. Two new insects were reported making dangerous inroads, the balsam woolly aphid and tussock moth.

Aerial spraying next Spring was recommended to nip the tussock moth which has swept 9100 acres in Stevens county, Wash. A new subcommittee was formed to organize the battle. The woolly aphid has infested 258,880 acres in Washington and 35,680 in Oregon, attacking mostly the white, silver and alpine firs.

The general insect outlook for the region looks the most favorable in years. Total epidemic infestations are down to 2.2 million acres from 7.7 million acres in 1954. In addition to the budworm, the Douglas fir beetle and silver fir beetle are at low ebb. The western pine beetle is also quiescent.

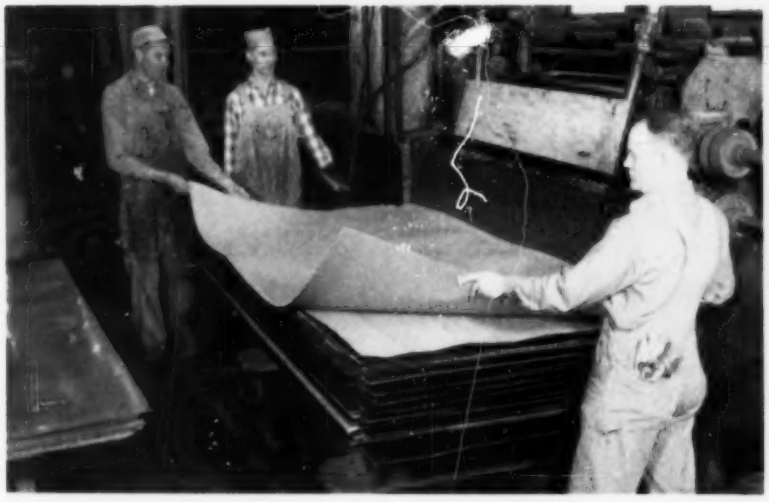
High on the list of diseases causing tree trouble was the needle blight, attacking ponderosa pine. Dwarf mistletoe was considered second high. Both were rated by the committee as requiring urgent research.

ON THE SALVAGE logging front, some 1.1 billion board feet of Douglas fir beetle attacked timber has been taken out in five years. This required 36.5 miles of government-built roads and 123 miles of operator-built. On private lands, 10 percent of total log production was salvage logged.

The Bureau of Land Management reported that two-thirds of a contemplated sale program of 1½ billion board feet of dead, down and damaged timber was completed. A 90-mile network of access roads in the Smith River area of Oregon will be completed in 1956. Total road program of the agency, 323 miles, calls for completion of 117.2 miles by the end of 1956; 37 miles have been completed.

Other Committee report highlights:

- Western hemlock is dying in western Washington from unknown causes. A survey of the Wash. Forest Products Institute indicates the mortality as due to a combination of soil and site conditions, logging damage and unusual weather conditions.
- A 725-page monograph on the western pine beetle will be published, authored by F. P. Keen, who is also preparing material on cone and seed insects.
- Root rot of Douglas fir is receiving more study.
- Oregon State College Forest Experiment Station is conducting a research project on screening insecticides for use in spraying forest insects.
- Some 123 million board feet of silver fir beetle-attacked timber has been salvage logged to date. In 1956 102 million feet is proposed for logging. Total volume of distressed timber in 1954 was 1.25 billion feet.
- A study by a silver fir beetle subcommittee on rate of deterioration of beetle-killed timber showed that when the wood was used for sulfate pulp, two year dead trees yielded 95.2 percent of the green yield, 3-year dead trees 93 percent and 4-year dead trees 91.2 percent. Similar ratios held for the sulfite process.
- Two root rots are being studied. They attack Port Orford cedar and Douglas fir.
- Animals continue to cause damage. Bears and porcupines are top depradaters, the latter working on ponderosa pine.
- Aerial detection survey personnel put in 277 hours of flying time this year looking for and mapping insect attacked areas.



CREZON, a Crown Zellerbach Corp. product, is cut at the mills to sheet size, shipped in rolls. Crezon is a fused plywood material, suitable either for exterior or interior construction.

Fused Panels Possible With New CZ Overlay

CROWN ZELLERBACH Corp. has developed a new type of plywood patching whereby knotholes, splits, pitch pockets, cracks, etc. are automatically filled with a thermo-setting plastic compound to provide solid base over which CreZon—overlayment produced by CZ—is bonded. CreZon is composed of phenolic resins and cellulose fibers, processed to 0.014-inch thickness, with phenolic glue line added. Material is shipped in rolls.

The Crown-developed patching machine which carries out these production processes has been installed at U. S. Plywood Co.'s Seattle, Wash. plant. The CreZon is bonded to the plywood under intense heat and pressure in a hot press, creating a weather resistant surface suitable for exterior use.

The filler-overlayment technique reportedly produces dimensionally stable, quality, weather resistant plywood from low grade veneers heretofore not suited to manufacture into plywood by conventional methods. The system also offers opportunities in cost reductions by eliminating standard veneer patching operations. CreZon fused plywood can be worked with conventional wood working tools and equipment.

As plywood panels progress through this machine a roller brush cleans the face surfaces then the plastic filler is forced into any existing holes or indentations. Subsequent to filling, the panels go to a curing chamber where the plastic, in the presence of heat, takes a permanent set.

Salvage Nears Completion

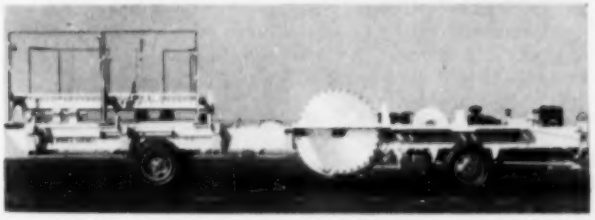
(Continued from page 83)

be up for bid this fall on the Sitkum river.

The latest in logging equipment was employed, especially in shovel loaders. One hundred twenty-seven miles of new road was constructed; 89 miles will remain in the permanent system.

AND NOW — WITH **REMOTE CONTROL!**

THE BACHMOBILE SAWMILL



Latest development in the BACHMOBILE—the compact, sturdy, portable sawmill for western timber —is remote control. From his platform facing the exposed side of the log, sawyer controls carriage, setworks, log turner and air dogs by means of electricity operated solenoids activating air valves.

Check these outstanding features:

MACHINE INCLUDES
- Carriage
- Edger
- Power Unit
- Compressor
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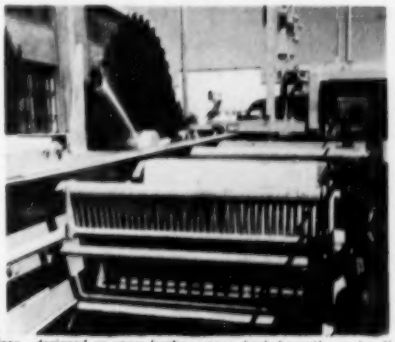
- Blower

√ Move, set up and saw in an hour's time.
√ No foundation needed—outriggers give stability.
√ Mill designed with standard bearings and parts.
√ Single steel unit—nothing to get out of line.
√ Powered by 200-250 H.P. Cummins diesel engine.
√ 46" opening carriage handles 24' logs.
√ Equipped with 60" Spear & Jackson saw.
√ 6-man crew saws up to 30 M feet per shift.



6" edger—designed so sawn lumber passes back beneath carriage"

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for complete information, names of satisfied users or to arrange demonstration.

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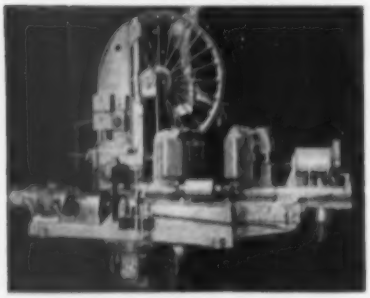
How To Muffle Chain Saws

• A new silencer muffler for power chain saws, to lower effectively the saw's noise-level as well as to provide a new safety feature, has been developed by McCulloch Motors Corp.

The new muffler is a lightweight device. It is the same size as a standard muffler. Exhaust gases flow into the muffler's primary cavity, then continue through a flat passage into the secondary cavity. The gases are then reversed and directed through another flat passageway before being expelled through a side outlet.

For futrher information Circle No. 6.



Prescott Offers New Resaws

• The latest developments in Prescott vertical resaws are described in Bulletin 1400 just released by The Prescott Co., Menominee, Mich.

Covered are all the construction data, technical specifications and complete dimensions of the three resaw models—5-6 and 7-foot—offered by Prescott. Precott resaws feature heavy-duty construction, the Prescott ultra-sensitive knife-edge saw straining system, the continuously variable feedworks drive, and the air-operated, combination sidesawing and self-centering setworks, instantly changeable from one to the other. Working on a double rack and pinion principle, this setworks cannot be sprung.

Bulletin 1400 will be sent if you Circle No. 2.

Design of Scraper Permits Greater Hauling Capacity

• Caterpillar has introduced a new crawler-drawn scraper featuring an exclusive new "lowbowl" design. It's the No. 463 Scraper, second largest scraper in the company's line.

No. 463 has a struck capacity of 18 cubic yards and a heaped capacity of 25 cubic yards. The longer, wider bowl affords greater volume and greater heaped capacity. Positive dozer-type ejection assures complete bowl emptying. Adjustable ejector guide rollers, protected cables and straddle-mounted rear wheels with adjustable axle height are a few of the many features on the No. 463.

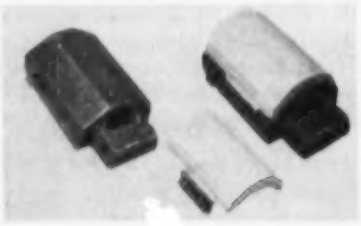
If you desire additional information on this scraper, Circle No. 7.

Car Mover Converts Rapidly

• Whiting Corp's new heavy-duty Trackmobile operates on both road and track. It travels on roadways, or across track, on four pneumatic wheels. When the Trackmobile is astride a track. the automotive-type road wheels are retracted and the machine rests on its steel rail wheels, ready for track operation. This conversion from road to rail wheels takes only 90 seconds. The Trackmobile is then ready to travel on the tracks, couple to freight cars, and push or pull them. The machine can be driven over unimprved tracks—special crossing points are not required.

It has been fully tested by industrial plants as part of a year's program of testing and research. It is driven by a powerful V-8 industrial engine, has a tractor-type suspension to protect against shock when crossing ungraded track, and its all-welded frame is strong and rugged to withstand the punishment of hard, continuous operation. It's engineered and built for years of use, with a miinmum of maintenance attention.

Full details including pictorial literature are available by circling No. 1.



Chain Cover Protects Lumber

STANDARD TRANSFER CHAIN can quickly and inexpensively be given a "rubber cover" to eliminate lumber damage, by means of rubber cover clips manufactured by Holz Tire & Rubber Co.

Non-marking abrasion-resistant rubber permanently bonded to a patented metal clip does the job. Clip snaps on by hand; two hammer blows swage in the curved lip to anchor the clip positively onto the chain link. Installation time is 30 seconds per link. Standard clips are available for #130 and #138 types of chain. Complete data and prices may be obtained. Circle No. 3.

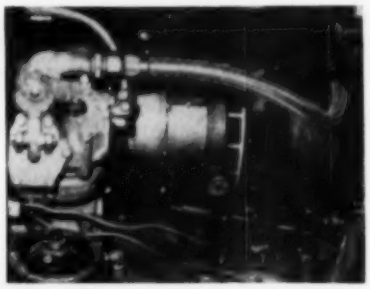
SJ-4 Self-Propelled Yard-Loader Built for many Types of Logging

• Whatever the type of logging is required on your woods operation, you will be interested in seeing how the Skagit SJ-4 Mobile Logger is being used today. Skagit's new brochure shows the SJ-4 at work yarding and loading on steep terrain, loading on a tractor show, salvage logging and doing various other woods jobs.

Close-ups of the various construction features and clear descriptions of operating components wil give you a good idea of how the SJ-4 achieves its versatility as a yarder and loader. It has air controls and a torque converter.

Complete specifications and performance data are included, along with dimensions and rigging diagram.

The circular will be sent free. Circle No. 4.



Aeroquip's New Hose Resists High Operating Temperatures

• A new compressor discharge hose for use on truck and bus air-brake systems is now being manufactured by Aeroquip Corp.

Available in sizes from ¼ through one inch, the new hose is constructed with a silicone inner tube and features a stainless steel outer braid. The hose has been designed to operate at 125 p.s.i. and may be used with Aeroquip's "little gem" fittings.

Thorough tests of this hose (No. 2800) have been completed; actual field tests were conducted over a period of seven years. The hose is resistant to high operating temperatures encountered in this application, and is already being used by several bus lines.

Further details on the new hose may be obtained by Circling No. 5.

D. J. MURRAY MFG. Co. announces that with new and existing Murco chippers may be provided with the new "Uni-Chip" patented disc face that produces a more uniform chip with much less bruising, less rejects and less sawdust. The knife covers and disc plates below the wear plates are specially machined to an inclined contour giving increased support to the wood with resultant improvement in the quality of chips.

Get the Latest Information on New Developments Every Month on This "Pep" Page

Select the numbers of the products or services which interest you. Circle the corresponding number on the Business Reply Card and mail.

DO YOU HAVE A PROBLEM straightening wire rope? If such is the case, there is a new tool on the market to help you. It's called the "Wire Rope Straigthener" and is hand operated. It is portable and removes bends, twists, loops, kinks from all sizes of wire rope. For a bulletin on this straigntener, please circle No. 8.

A NEW EIGHT-PAGE, TWO-COLOR catalog (MS-455) which gives the design, engineering and performance story of the four-cylinder, 60 h.p. Allis-Chalmers W-226 power unit is now available. Included in the catalog are specifications, cut-away views of the power package and many of its components: photographs of the fan to flywheel unit. For your copy circle No. 9.

TRUCK TRACKS—do you need them for your trucks? Truck Tracks are being used successfully by loggers, lumberman and contractors when the going gets tough in snow and mud. For information on easing your winter truck haul problems by installing Truck Tracks, send for the special illustrated pamphlets issued by P and G Supply of Portland, Oregon. For your copy please circle No. 10.

A NEW PNEUMATIC cylinder is announced by the Cunningham Manufacturing Co., Seattle. These are double acting cylinders. They are compact to save space and designed with a minimum of moving parts to cut down weight. Available in adjustable or self-regulating cushioning; foot mounted or pendulum mounted. For your data sheet on Cunningham pneumatic cylinders please circle No. 11.

AN ATTRACTIVE SIX PAGE folder describing Marathon Portable Gangsaws for smaller sawmill operations is available. There are one hundred of these in operation on the coast. Complete description of their model number 120 and number 200 for cutting either cants or round logs are shown in the pamphlet, as to capacity, stroke, feed, saws, rpm, hp required and gross weight. For your copy circle No. 12.

AN IMPORTANT DESCRIPTIVE circular about Free-Lock drives for 4-wheel drive Willys trucks is available for the asking. The pamphlet describes the positive control of Free-Lock drives and the easy selection of 2-wheel or 4-wheel drive in a matter of seconds. For your copy of this circular, please circle No. 13.

"HOW TO SELECT GRINDING WHEELS for Precision Grinding, Tool and Construction Steels" is the title of a booklet published by Norton Company. This booklet consists of reprints of three articles on better grinding. The booklet is liberally illustrated with photographs and charts. For your copy circle No. 14.

CARRIES LIKE A STRADDLE TRUCK and yet stacks like a fork lift truck. The new Traveloader by Baker-Raulang employs an entirely new and unique principle in handling lumber of any size, uniform or random. Will be available with 20' fork lift tower. Can perform stacking operations in aisles as narrow as 10 feet. For further details circle No. 15.

SODERHAMN ANNOUNCES the new development of the automatic pivoted arm rotor, using pneumatic pressure and taking logs ranging from 5" to 30" in diameter. This is the first automatic, pneumatic barker available to the market. For details circle No. 16.

SAVE WEAR AND TEAR on your plant superintendent or night watchman. West Coast Machinery Co. manufactures a complete line of electric cars especially designed for parts chasing, carrying supervisory personnel or watchmen around big plants, or for general intraplant use. Free of fire hazard and fumes. Cheap to operate. Circle No. 17.

PLANER BED SHEETS NEED HARD CHROMING. Precision Engineering Co. has just put out a set of price sheets classifying the costs of hard chroming planer bed sheets. Circle No. 18.

DO YOU HAVE SAW CHAIN sharpening problems? There's a new sharpener on the market—the Skookum file-n-joint saw chain sharpener—which is becoming well known for its ease and speed of operation. For a pamphlet, illustrating the use of this new sharpener, circle No. 19.

Circle numbers and mail this card for free literature on new products and services

To get further information on any item described in the Production Equipment Preview:

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POSITIVE ALL WEATHER STARTING FOR DIESEL ENGINES. Manufacturer, Aeroproducts Div. of General Motors, explains that this new low-cost diesel Hydrostarter is a hydraulic starting system that replaces regular starters. Completely self contained, it is easy to install and simple to maintain. Your own mechanic can make the installation. For more details circle No. 20.

LOGGERS WHO ARE constructing roads and maintaining them will be interested in a new pamphlet on pneumatic tool accessories being distributed by Eugene Equipment Company. The convenient catalogue explains about tools for breaking pavement, rock and brick. A copy will be sent you. Just circle No. 21.

ELIMINATE DOWNGRADING and protect lumber in outside storage and in open car shipments. More and more retail and wholesale lumber dealers across the country are looking more keenly to mills who will provide wrapped shipments. A booklet is available explaining the economics and advantages of wrapping with American Sisalkraft "fibreen". "Fibreen" is quickly and easily applied to any size units of lumber and affords full protection from the elements. For further details circle No. 22.

WHAT IS A TURBODIESEL? What are the advantages of turbocharging? How does a turbocharger work? How has turbocharging been applied to Cummins Diesels? The answers to these and many other questions on turbocharging are found in an attractive, 16 page booklet, just released by Cummins Engine Company, Inc., Currently Cummins Engine Company is producting five "Turbodiesels". Copies of this information booklet may be obtained by circling No. 23.

UNIFORM AIR CIRCULATION is one of the features of the new Proctor "DA" veneer dryer manufactured by Proctor & Schwartz. Both sides of each veneer sheet received uniform amounts of air the entire width of the conveyor up to velocities four times greater than in the past. For more details circle No. 24.

GANGSAWS FOR RUGGED SERVICE may cost more, but in the long run they are economical. One machine of this type manufactured by Dominion Bridge produces up to 50,000 board feet of logs or 80,000 board feet of cants per eight-hour shift. It's all-steel and of simple design; no complicated adjustments. And the cost is reported low. For particulars, circle No. 25.

ONE OF THE FASTEST CUTTING chain saws (IEL) has been developed with direct drive, diaphragm carburetion, full power in any position. There's said to be no swiveling in this handy machine, and the full 5 h.p. easily handles up to 32 inch bar. For details, circle No. 26.

TRACTOR OPERATORS report savings of from 20 to 40 percent on track parts when they use hydraulic track adjusters, which fit all models of Allis-Chalmers, Caterpillar and International tractors. These track adjusters are manufactured by Timberland Machines Ltd. A single operator can adjust the tracks himself. For complete information, circle No. 27.

A NEW VENEER CHIPPER has been designed with several practical advantages. It is said to insure top production of top quality chips, and to meet low initial cost and avoid angular base while maintaining horizontal feed it provides for vertical cutting. The machine manufactured by Canadian Sumner Iron Works has a large spout opening that gives maximum cutting surface and large infeed capacity. For particulars, circle No. 28.

NON-DEFACING AIR operated dogs can be put on any carriage by using Mater Tong Dog Conversion Kit. Comes in three sizes to suit all carriages from smallest to largest. Bulletin No. 29 describes types uses and attachment of Kits. For your free copy, circle No. 29.

BETHLEHEM WIRE ROPE for general purposes, A new illustrated catalog containing detailed information on Bethlehem wire rope, has just been released. Special features and grades of rope available, Form-set (preformed) construction and bethanizing (galvanizing) are given in the opening section of the catalog. A discussion of various constructions, lays and cores of wire rope is also included. For your copy, circle No. 30.

A NEW TYPE PUMP is on the market for forest fire fighters. It is the Gen-A-Matic centrifugal self-priming pump with swirpool impellers. The specifications indicate the pump is completely automatic—water is flowing in seconds after the pump has been started. All models have air cooled 4-cycle engines. For complete details, circle No. 31.

TO THOSE MILL OPERATORS who are interested in the problem of getting out more rapid production on dimensions, studs—ties—cants, a fine illustrated circular describing the Keystone Scrag Mill is available. Details and descriptions of the various pieces of equipment accompanying the Scrag Mill are described in this circular. For your copy, circle No. 32.

ROTARY SAW FILER sharpens saws on the mandrel. This easy way to sharpen is with the Andrus Rotary saw filer. According to the manufacturer you save 25% on teeth and you cut filing time 50%. The filer is easy to operate; only 10 simple parts. For a pamphlet on this filing equipment, circle No. 33.

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Alder Assumes Importance

(Continued from page 87)

• The log patrol act enforcement, recently centered in the Division of Forestry, now requires services of two men. Recently a 26-ft. boat was secured. A log brand book has been published for use by log patrol, boom companies, log and mill owners and others; it is available at cost. Compliance with the log patrol act has been improved.

• A new 80-acre nursery site south of Olympia now being readied for seedlings will give the state a potential capacity of 35 million 2-0 seedlings annually.

• Rehabilitation of the Yacolt Burn area near Vancouver, Wash., will proceed next year at an advanced pace with the opening of an "honor camp" housing 60 inmates from the state prison. Another 65-man camp for reformatory inmates will be constructed and operated in Clallam county on the Olympic Peninsula in 1956.

VALUE AND IMPORTANCE of research in wood utilization and technology has tended to overshadow some of the research needs in the field of producing better timber, George Staebler, forester for the Pacific Northwest Forest & Range Experiment Station, told the group. He stated that the aim of timber production research is to provide a product "as close as possible to the one we would choose—if we had a choice."

Staebler said most industries spend far more on research than do the forest industries and that the average is around 0.9%. Lumber and wood products ranks practically on the bottom—with 0.2%. He stated that about $9.8 million is spent annually on "timber production research," designed to obtain maximum volume from each acre of timber. He considered this type of study more important than product research. There is a reason, he said, why timber product research has been slow to develop: people tend to overlook its value because a long time is required to grow a tree. It takes painstaking research to develop knowledge on the proper spacing for various products, e.g., peelers.

"GENETICS MAKES THE TREE better fit for human use than run-of-the-woods trees," declared John W. Duffield, forester, Forest Industries Tree Nursery, Nisqually, Wash. He cited some of the reasons why tree improvement is now more timely than ever:

• We are converting to a young growth economy in forestry.

• There is more competition from other materials.

• We are just now learning of the large number of insects, diseases and other pests that thrive on young growth.

Duffield mentioned advantages of well-developed trees, including ease of handling trees all of a similar size.

Duffield discussed operation of seed orchards, similar to ones in Europe. These are based on grafted trees, capable of producing high-grade nursery seed. The grafted limbs are selected from superior trees in the forest. Duffield says such a program is possible within 10 years' time.

Duffield mentioned theories that hold that there is a relationship between the roughness of the bark of a tree and the quality of the wood in that tree.

HOW FIRE AND lightning insurance on live standing trees will be applied to forest ownerships in the western states was discussed by C. E. Byrne, Balfour, Guthrie & Co., Ltd. (Similar information on this was reported in November issue of THE LUMBERMAN: "Here Are Details of Fire Insurance for Living Timber.")

Factual examples of problems faced in getting proper management of small tree farms were presented by Richard F. Smith, Mason, Bruce & Girard, consulting foresters. He said one of the stumbling blocks for long-range management is the desire of an owner to sell his stumpage "now" and get in return a large sum of money in one lump. A consulting forester not only has to sell the client on a program of wise management but usually has to present an immediate economic return to the owner.

Smith stated, "I believe that the initial cut in a management plan under such conditions should be such a heavy cut that the loggers will not be interested in what is left until it has had time to grow to merchantable size."

Another obstacle he cited was that some owners "won't accept anything approaching the realm of reality or practicability" and will insist on unworkable methods of timber removal, clean-up and scaling.

SMITH'S FEELINGS ON what an individual should do with a tract of timber acquired by inheritance were revealed: "If the present owners pass onto their heirs a stand of timber that has **high cash value,** it is very probable that it will be liquidated. If only a **potential** were passed on to the heirs, so that they would **have** to practice woodland management over a period of years before the timber had a high cash value, then the chances of the creation of another piece of slashed-over woodland would be lessened."

Smith further stated, "The large majority of woodland owners are not interested in a management plan if it is going to cost them anything. In woodland management we must market the harvested material in the form that will bring the greatest returns to the owner. This is termed intensive management as compared to extensive management. Some of the larger companies are beginning to practice this same theory by breaking up their extensive holdings into smaller units and placing a specified forester in charge of each unit to apply intensive management."

Officers for 1956

President: Gordon D. Marckworth, Dean, University of Washington College of Forestry, Seattle.

Vice presidents: Emmit Aston, Biles-Coleman Lumber Co., Omak; E. F. Heacox, Weyerhaeuser Timber Co., Tacoma; and L. T. Webster, State Supervisor of Forestry, Olympia.

Sec.-treas.: William H. Larson, Washington Forest Fire Assoc., Seattle.

Newly elected trustees joining 50-member group: Peter S. Greenwood, West Tacoma Newsprint Co., Steilacoom; George F. Herion, J. Neils Lumber Co., Klickitat; Phil Hogan, Weyerhaeuser Timber Co., Snoqualmie Falls; and Mike Lazara, Keep Washington Green, Seattle.

Fire Expert Dies

• An outstanding forestry research expert and inventor, William Bushnell (Bush) Osborne, died in Portland, Ore. in October. He built the first fire finder in 1910, and the improved transit fire finder in 1917, still used by the U. S. Forest Service and other agencies in standard lookout equipment.

Born in New York state in 1884, Osborne became interested in biology and forestry at Williams college. He received his MA. degree in forestry at Yale University in 1909 and came to Oregon shortly after.

In addition to inventing the first fireman's pack with emergency rations in 1912 and the improved transit fire finder in 1917, he invented the first nested mess outfit in 1916 and wrote the first book on fire fighting technique. Many of the chapters for the protection manuals of the Western Forestry Conservation Assoc. were written by Osborne and are used as basic study for forestry schools and are standards for the western forestry region.

Perhaps his best known contribution is his photo-survey transit, developed in 1929-30, which takes a triplicate picture of the entire horizon circle with azimuth and vertical angle readings on which the lookout can instantly spot a blaze by the actual photograph after sighting with his fire finder.

Following his retirement in 1945, he did private consultant work, both in this country and in Canada.

Torque Converter Saves

(Continued from page 115)

vehicles. Used with the TG 600 series transmissions, it is available with the TC 400, 600, 800 and 900 Series Toramatic Converters. Charts are available to show its braking hp. curve, for various loads.

LONG MANUFACTURING DIVISION, BORG-WARNER CORP., DETROIT, MICH.

Available in Series 1100, 1200 and 1280. Selection is based on a chart showing engine torque in lbs./ft. and input RPM.

The units are offered in a "power package". Available are disconnect clutches, forward and reverse drive systems, speed reducers, power take-offs, separate 3-speed or 4-speed transmissions.

CLARK EQUIPMENT CO., TRANSMISSION DIV., JACKSON, MICH.

Manufactures the complete Torcon line of torque converters. These are made for hp.'s from 15 to 600. Units come in sizes from 11 to 26 inches in diameter.

The 11-inch unit handles hp.'s from 15 to 80; the 12 and 13 inch hp.'s from 20 to 150; the 14, 15, 16 and 17 inch hp.'s from 32 to 350; the 18 and 19 inch hp.'s from 55 to 450; the 26 inch hp.'s from 100 to 600.

CHRYSLER CORP., MARINE & INDUSTRIAL ENGINE DIV.

Manufactures an Industrial Torque Converter for 40 to 275 hp. output range. It is 12½ inches in diameter. Provides 2.6 torque multiplication. Has built-in speed control, provision for transmission and power take-off.

TWIN DISC CLUTCH CO., HYDRAULIC DIVISION, ROCKFORD, ILL.

Twin Disc manufactures two models of three-stage torque converters, the DF and the CF. DF is better adapted to conditions encountered in logging truck use. The CF was designed for open-pit mining and other hauls where trucks are faced with constant climbing and descending of extremely steep grades.

The four control positions of the Model DF are neutral; torque converter drive for logging; built-in "Hydrodynamic" braking for descending; and direct drive for straightaway runs. Manufacturer states that majority of truck engines can be equipped with the Twin Disc TC. Torque multiplication at stall speed is 6:1. Changes from one stage to another are controlled from a valve within close reach of driver. Built-in-oil-actuated clutches engage to combine converter and engine braking features. Manufacturer states that approximately two-thirds of the maximum hp rating of the engine is realized in braking power.

A lock-out drive disconnects the hydraulic portion of the converter over flat terrain, where it is not needed, permitting maximum speed.

DF has the 10,000 and 11,500 Series. The manufacturer states both series have seven capacities to handle the majority of truck engines available. The DF bolts directly to engine flywheel housing; clutches are built-in.

Optional original equipment is available in most sizes to apply the power to a specific application or adaptation. This includes power take-off or rear mounted clutch, front end clutch enclosure to provide cut-off between torque converter and engine, double acting reaction member and overspeed free wheel unit.

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CROSS-CIRCULATION INTERNAL FAN SYSTEM

Specialties Pay Off

(Continued from page 81)

other to a Rees Mfg. Co. burner. When the fuel house is filled, discharge is to the burner. Fernwood hogs its own leftovers but the sawdust from the plywood fabricating shop was so fine a special brick incinerator was erected nearby for its handling.

The pressure treating plant yard now has two cylinders, each 100 inches ID by 100 feet long, one each for penta and creosote. Substantial quantities of poles are put into Penta by Western Electric Co. Fernwood quotes prices on both penta and creosote, with buyer's choice.

Handling of the poles, posts, piling, railroad cross ties, and lumber in the yard as well as into and loading and unloading of cylinders is done with three locomotive steam cranes assisted by a Unit Crane & Shovel Co. mobile crane. Also used in yard handling is a large Clark-Ross fork lift truck. The company supplies treated fence posts for local trade.

Fernwood has discontinued both townsite ownership and commissary operation. Houses were sold to the employees, on a mortgage-financing arrangement.

Company Officers and Personnel

President: Lamar Ramsay.

Vice president and secretary: W. R. Atkins, Jr.

Vice president and treasurer: L. E. Ramsay.

Assistant secretary: R. M. Jones.

MANAGEMENT EXECUTIVES include: **L. E. Ramsay, general manager; W. R. Watkins, plywood sales manager; E. C. King, treating plant sales manager.**

Veneer superintendent: W. L. Prestridge.

Plywood superintendent: H. F. Statum.

Treating plant superintendent: C. L. Mayerhoff.

T. L. Enochs is president of both Fernwood, Columbia & Gulf and the Bon Homme Hattiesburg Southern railroads. T. L. Pittman is general manager.

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Sumner Iron Works, Everett, Washington, W. Coast Rep.
Canadian Sumner Iron Works, Ltd., Vancouver, B. C. Canadian Rep.

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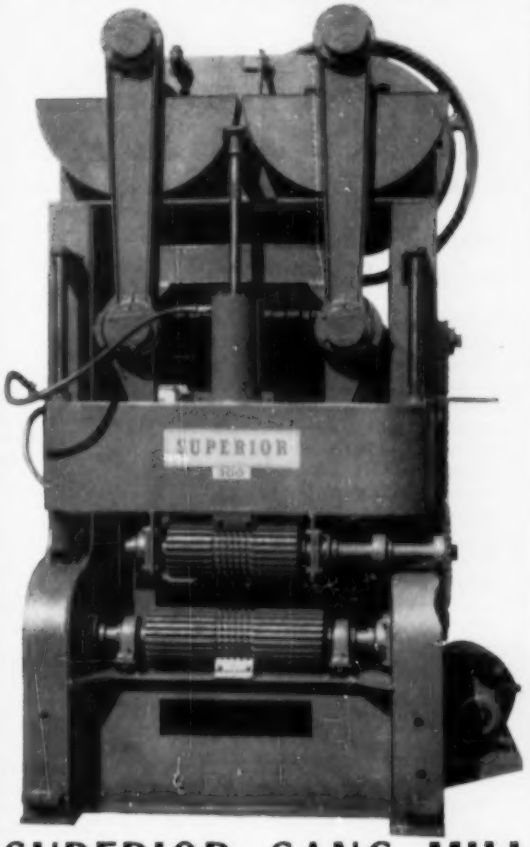

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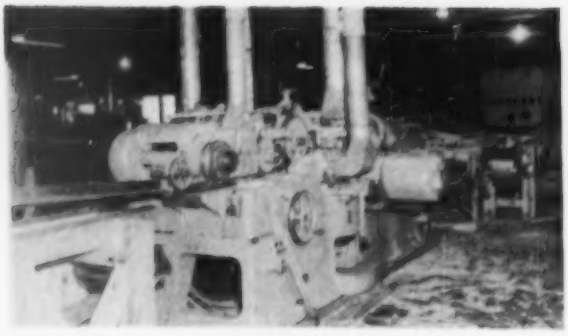
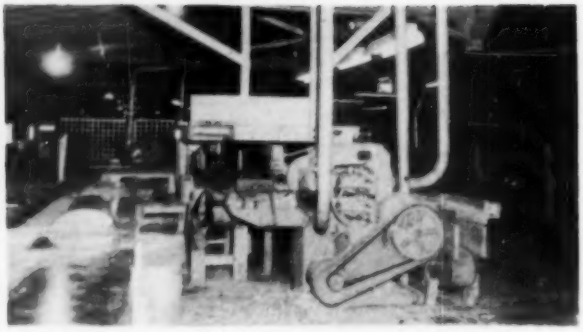


YATES-AMERICAN A-23 side matcher in the J. L. Williams plant.



END MATCHER and layout installed in this plant at Sheridan, Ark.

Company Installs 2nd Hardwood Flooring Unit

OPERATING A ROUNDED out lumber manufacturing business, J. L. Williams & Sons Lbr. Co. at Sheridan, Ark., have recently installed a second hardwood flooring unit. This is efficiently laid out, with straight line production and no waste of labor by handling. W. J. ("Jack") Williams is active in direction of the company.

Two circular head rigs together produce about 4M feet per hour of both pine and hardwood, with purchased green lumber increasing the volume to point where the 400M feet weekly capacity of the dry kilns is kept busy. The company produces eight million board feet annually in oak alone. Double surfacing is performed on the short leg of an "L."

In the long reach is a Yates-American A-23 side matcher, with the two end matchers following in line. Feeding is direct to a sorting table and its bins, with a Signode strapping machine directly behind. The new unit produces 540M feet linear measure per week. All flooring is made up in Signode strapped bundles.

Soon to be installed is a new high speed Yates-American molder.

SIGNODE UNIT IS pictured strapping the finished oak flooring into bundles.

Established in its present organization in 1890, J. L. Williams & Sons was preceded in the lumber business in South Arkansas by Jack Williams' grandfather. One of the first innovations performed was the planing of dimension on four sides. In 1914 the company pioneered in use of motor trucks in logging operations.

Production of the Sheridan plant includes yellow pine and oak trim and molding, and a range of yard stock.

The company's office is beautifully finished in oak paneling, with custom made oak venetian blinds.

W. J. WILLIAMS

Color Photos Aid Salvage

(Continued from page 89)

tion of stand volume is the goal of the photo interpretation, particularly in saw timber, it is very important that the dominant and co-dominant trees be counted accurately because they include the bulk of the volume.

To obtain some preliminary information on this question, a plot covering about three square miles that had been photographed in color was studied. This plot, located in the Coast Range near Corvallis, Oregon, was examined on the ground late in 1954 after photo interpretation had been completed. Twenty-six beetle-killed groups, varying in size from 7 to 67 trees and averaging 21.5 trees, were examined. The photo count on these groups averaged 19.3 trees. A comparison of photo count with ground count, group by group, gave a standard error of estimate of 3.7 trees which is about 17.2% of the average ground count.

Although the above sample is too limited to provide the basis for a correction factor, the results did indicate that most beetle-killed dominant and co-dominant trees can be counted; some of the intermediate trees can be counted; but none of the suppressed trees are likely to be counted. The sharp tonal contrast of the dead trees, the thinning of the crowns of dominants and co-dominants, and the fact that one photo of the stereo pair gives an oblique view of the group being counted may account for the fact that many intermediate trees can be counted. Suppressed tree crowns usually are so small and completely over-topped by the crowns of larger trees, that they cannot be seen on vertical photographs.

A SPECIAL STUDY was made near Corvallis, Oregon, in Douglas-fir stands of various ages to determine the percentage of volume included in the intermediate and suppressed crown classes. Ninety-two one-fifth acre plots taken at random showed that the average volume of these two classes was only 3.3 percent of the total volume. The range of these volumes by plots was from zero to 22.2 percent with about three-fourths of the volumes falling between zero and 8.1 percent of the average.

What techniques were used in interpretation? The colored transparencies were placed on a light-table and studied stereoscopically with a

(Continued on page 131)

Color Photos Aid Salvage

(Continued from page 89)

mirror stereoscope which had a binocular attachment for magnification. Orientation was maintained by placing a transparent grid, which was subdivided into one-inch squares, under one of the transparencies of the stereo pair. When the 1953 and 1954 photographs were being compared for annual mortality, two light-tables were used so that the interpreter could study each beetle group as it appeared both years merely by swinging around from one stereoscope to the other.

So far, most of the experimental work in the Northwest with aerial color photos has been directed to the Douglas-fir beetle problem. The studies are being continued and extended to other important insect problems. Enough has been learned already to indicate that color photos should prove useful and practical for many other forestry purposes.

Barker Aids Recovery

(Continued from page 102)

Winton are: Kearns, Winton; John Dean, sawmill superintendent; Clayton Chatfield, construction superintendent; C. M. Riddell, project engineer, Sumner Iron Works, and A. E. Small, factory representative, Sumner Iron Works.

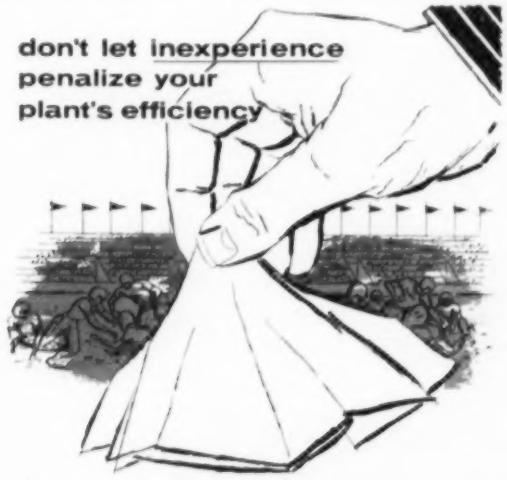
Barkers Are Reviewed At FPRS' NW Section Meet

• A panel of sawmill experts reviewed the pros and cons of sawmill barkers at the Forest Products Research Society's Pacific Northwest Section meeting in Vancouver, B. C. in October. The panel was composed of D. G. Allison, Lions Gate Lumber Co., whose experience has been with the Nicholson barker; G. S. Bowell, Canadian White Pine Div., MacMillan & Bloedel, which has several Simons barkers in operation; Frank Foyston, Alaska Pine & Cellulose, which has Hansel oscillating arm barkers at three of its mills; H. Hagerman, Bridge Lbr. Co., where a Bellingham (Sumner) barker is installed; and Leo McDonald, Canad. Forest Products, Eburne Div., which uses Hansel ring barkers.

Don Burnet, safety engineer of Pilot Rock Lbr. Co., Bend, Ore., spoke on the application of statistical quality control in the sawmill; J. L. Ziegler, gen. mgr. of Western Nu-ply Corp., South Bend, Wash., described his company's new wood panel product; and S. C. Corder, mechanical engineer, Ore. Forest Prod. Lab., Corvallis, Ore., discussed suspension drying of wood particles. R. H. Edgett, assistant manager of Seaboard Lumber Sales, addressed a dinner meeting on lumber uses overseas.

During the barker discussion, Foyston told of Universal Lumber & Box (Alaska Pine subsidiary) experiments with slab barkers during the early postwar years. Owing to cramped location various types of hydraulic barking had been discarded until Hansel Engineering Co. developed the oscillating arm type which had proved able to handle 800 logs in an eight-hour shift at an installed cost of about $163,000. Gross annual saving was calculated at $240,000 less taxes. Barking costs worked out at about 50 to 60 cents per 1000 feet of wood. The company now had four Hansel oscillating arm barkers at its various mills; they were economical and no seal trouble had been encountered.

• **THE SAWMILL DESTROYED** by fire a year ago has been replaced by Ferriday Hardwoods, Inc., Ferriday, La. The new mill, of concrete and steel construction and equipped throughout with electric motors, has a capacity of 30M to 40M feet daily. The headrig is McDonough's newly designed 6-foot band and it is backed with a McDonough 6-foot resaw, both sold through Corinth Machinery Co., Corinth, Miss. Other equipment includes a 16-foot Corinth carriage with air nigger and Berry hydraulic drive. It has three head blocks and weighs 8000#. The double end trimmer is a Corinth, as is the edger. P. H. Corbett is owner.



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The 200 million feet of timber we just bought in Trinity Nat'l. Forest brings our reserves to more than a billion board feet. This, plus three sawmills, two planing mills, and dry kiln capacity of seven million feet of seasoned lumber a month, is your assurance you can get the lumber you want when you want it, from the Ralph L. Smith Lumber Company. Good service makes good friends . . . we're working constantly to serve you better.

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RED BLUFF, CASTELLA &
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Sales Office at Anderson, California

LOG SCALING BUREAU men at Eureka, Calif. meeting, fr. L.: T. MACAVOY, Bur. of Ind. Affairs; H. HAUGEN, N. Cal. Bur.; B. DEMERS, Puget Sound Bur.; I. CRUM, USFS; M. SMITH, Grays Harbor Bur.; C. RICKSON, Col. Rvr. Bur.; R. BARRETT; G. CRABB, S. Ore. Bur.; J. DUPUIS, Col. Rvr. Bur.; T. FORSETH, N. Cal. Bur.; D. BARIS, Bur. of Ind. Affairs; W. GRIFFIN, Puget Sound Bur.; ART O'ROURKE, Mendocino County Bur.; K. E. CRAIG, S. Ore. Bur.; G. JACKSON, V. HALLIN, USFS, J. VAN ACKEREN, USFS.

Rules Group Work Advances Uniform Log Scaling

THE NORTHWEST RULES Advisory Committee organized in 1951, has been working on a uniform log rule to be used by all log scaling bureaus. Considerable progress has been made recently. The last meeting was held in Eureka, Calif. in September and the next one is scheduled for February 1956.

The Committee is the outgrowth of the need for a uniform log rule, which became evident about 1946 when the U. S. Forest Service began accepting Bureau scale in lieu of Forest Service Scale. With the formation of more Bureaus, the need became more imperative.

At a meeting in June 1951 the Committee was organized, with H. C. Hiatt, U. S. Forest, as chairman, and Glen Jorsensen, USFS, as secretary. The meeting was attended by the Puget Sound, Grays Harbor, Columbia River, Tillamook County, Southern Oregon, and the Northern California Bureaus.

Accomplishments since the Committee was organized include:

- A suitable scaling and grading rule for ponderosa pine and sugar pine, adopted in 1952.
- Publication of a new rule book for Douglas fir, hemlock, white fir, spruce and minor species, in January 1954. This resulted from a year and a half's work.
- A series of Bureau meetings held at Tacoma, Wash., Roseburg, Ore., Eureka, Calif. and Eugene, Ore. to reach uniform interpretation of the new log rules. Attending were Bureau managers, their supervisors and check scalers of the U. S. Forest Service. Scales and grades were discussed.

To be made available at the February meeting will be a report on the percent of difference between truck and water scale.

Problems Confront Loggers

(Continued from page 98)

all kinds of weather, he can average about 8 million bd. ft.

Previous to coming to Alaska Nelson logged in Lewis County, Wash.

Island Logging Co.

A typical small operation is that of Island Logging Co., a partnership of L. M. Owens, W. G. Owens and L. M. Marsh. L. M. has been logging in southeastern Alaska for 24 years. In the summer logging season, it works on the northwest corner of Revillagigedo Island at Gedney Pass and in winter moves to a more protected location at Thorne Bay on Prince of Wales Island.

Owens' main piece of equipment is an A-frame on log floats. The yarding machine is a Skagit BX 200 powered with a 275 Cummins diesel. Its 1800' of 1⅜" Edwards wire rope main line reaches to a great height, nearly 900' Owens estimates. This figures out to about a 60% slope. Haulback is ⅞".

Falling is by a two-man crew equipped with McCulloch power saws.

Owens has an 18-man camp. It is different than most in that it's built on floats and continuously kept afloat; most float camps are beached during logging. The camp has between 30 and 40 people in all, several of the crew having their own families and own dwellings.

All Owens' previous experience has been sawlog logging. Owens says, "We fall everything 10" in diameter and log everything down to a 6" top over 16' in length."

On Owens' summer show he highleads with the A-frame right from the hillside into salt water. "Sometimes we tight-line the logs down hill with two lines, using the Grabinski system." Some trees slide right to water's edge after felling.

Owens' total output goes to Ketchikan Pulp Co., with whom he has a contract. Owens does all the logging and builds the rafts; Ketchikan Pulp takes over from there and tows the raft to Ward Cove, the pulpmill site near Ketchikan. "No stumpage, no towage" paid by the contractor.

Owens' present contract calls for him to log three miles of shoreline. It will take him three seasons to finish the job, figuring on a seven-month season at this location.

Owens' main contact with town is via his 65 foot work boat. This boat carries passengers, food, logging supplies and other necessities. It is powered by a 200 Cummins diesel.

Volumewise, Owens logs out about 40M bd. ft. per day and about 10 million bd. ft. per year.

Established Operators

A number of established operators were on the Alaska scene before the pulp industry began. Many of these are still logging independently and selling their logs, including pulpwood. These "old-timers" include such organizations as Abe Lokke Logging Co., Sawyer-Reynolds & Co., MacDonald Logging Co. (now a subsidiary of Ketchikan Spruce Mills). Time and space did not permit covering these companies' operations this year.

- **TIRES CAN KILL!** Defective lock-rings on dual tire assemblies can cause trouble. An innertube blowing will kill a man. Never loosen a lug from the outside wheel until air is removed from both wheels on a dual assembly. Better yet, work on the tire with a sturdy guard in front of you.

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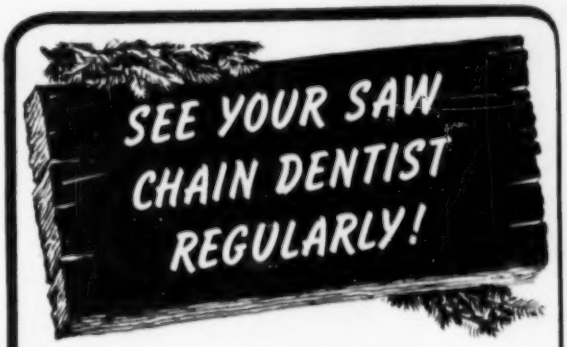

Any way you look at it, a chain saw's cutting efficiency largely depends on its chain.

And the efficiency of the chain itself is largely determined by the condition of its teeth, or cutters.

That is why it pays any chain saw owner to see his saw chain dentist (his dealer, that is) regularly.

You yourself can do the routine filing and maintenance work on saw chain cutting teeth.

But for economy, efficiency, and the reduction of chain failure, take your chain to your chain saw dealer regularly for thorough check-up and adjustment. He is equipped and trained to help you get the most from all parts of your chain saw.

When you have a chain saw problem of any kind . . .

SEE YOUR DEALER

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. . for the Duke City Lumber Company, is a Lawson which easily handles from 13,000 to 20,000 feet of lumber an hour. Upkeep is extremely low.

Gets the Job Done

quicker—better—cheaper!

WE'LL PROVE IT!

We can prove to you that a Lawson Stacker will save big money on your operations and will be one your most valued pieces of equipment. Write and we will send complete facts and literature.

A Lawson lumber Stacker can easily handle up to 30,000 feet of lumber per day per man and you know what savings an operation like that can mean. Furthermore, these stackers are keyed up to get the job done quicker than ever before by old methods. Your lumber comes out ready for drying even ends and spaced tight, loose or medium as you wish it. You'll like a Lawson Stacker for they are engineered and built to operate continuously and economically.

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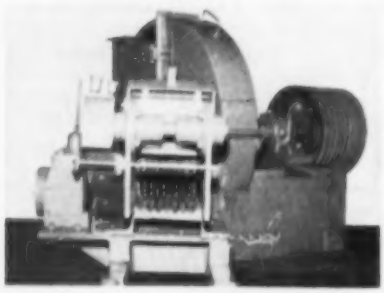

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Clean, uniform chips are worth money — that's why you will find a Carthage *Mechanical-Feed Slab* Chipper such a good investment.

Horizontal feed spout makes long slabs and rounds easy to handle; and the power driven feed roll, synchronized with the cutting speed, assures chip uniformity.

All parts are of heavy-duty construction for long service life and are easily accessible for servicing. Electric units for plant installation—Diesel-powered units for trailer mounting. Write for catalog.

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West Coast: Ray Smythe, 501 Park Bldg., Portland 5, Ore.

Log & Lumber Prices

• Log Prices—Columbia River

Douglas Fir Peelers: No. 1 $115 to $120; No. 2 $105 to $110; No. 3 $85 to $90.

Douglas Fir Sawlogs: No. 1 $60 to $68; No. 2 $50 to $58; No. 3 $45 to $47.50.

Hemlock: Peelable $55 to $65; No. 1 $50 to $60; No. 2 $42.50 to $50; No. 3 $40 to $42.50.

White Fir: Same as Hemlock.

Noble Fir: Peelers $52.50 to $60; Sawlogs: No. 1 $47.50 to $55; No. 2 $40 to $42.50; No. 3 $37.50.

Cedar: No. 1 $85 to $100; No. 2 $50; No. 3 $35 to $43.

Spruce: Select $75 to $90; No. 1 $50 to $65; No. 2 $45 to $60; No. 3 $40 to $42.50.

Douglas Fir Wood Logs: $25 to $28.

• Douglas Fir Prices

1x8 #3 or 4 S KD	$ 67- 70.00
2x4 #1 Dimension S4S KD	90- 92.00
1x4 B&Btr VG Flooring KD	170-175.00
1x6 B&Btr Drop Siding KD	160-165.00
1x6 B&Btr S4S KD	170-175.00
1x8 B&Btr S4S KD	170-175.00
1x10 B&Btr S4S KD	175-185.00
1x12 B&Btr S4S KD	215-220.00

#1 Timbers and Plank

3x12 6-20'	$ 87- 90.00
3x12 22-24'	92- 95.00
3x12 26-32'	100-105.00
4x4 6-20'	92- 95.00
4x4 22-24'	92-100.00
4x4 26x32'	105-110.00
6x6 8-20'	87- 90.00
6x6 23-30'	92- 95.00
6x6 32-40'	107-110.00
8x8 8-20'	86- 89.00
8x8 22-30'	91- 94.00
8x8 32-40'	106-109.00
6x10, 8x10, 10x10, 12x12, 8x20	86- 89.00
6x10, 8x10, 10x10, 12-12, 22-30	91- 94.00
6x10, 8x10, 10x10, 12x12, 32x40	106-109.00
Douglas Fir Cross Ties	67- 70.00

#1 Dimension (Green)

2x4 6-24	$ 78- 81.00
2x6 6-24	78- 81.00
2x8 6-24	77- 80.00
2x12 6-24	77- 80.00

#2 & Btr. Boards (Green)

1x4 6-20	$ 54- 57.00
1x8 6-20	73- 76.00
1x12 6-20	69- 72.00

• Douglas Fir Plywood

⅛" basis	$85

• Western Pine Prices

The following F.O.B. mill prices, based on Past Sales, were reported to the WESTERN PINE ASSOCIATION by members during the period 10/31 to 11/19/55 inclusive. Both direct and whole sales are included and are based on specified items only. They are for dry surfaced lumber.

PONDEROSA PINE

SELECTS S2 or 4S	4/4RW	5/4RW	6/4RW
C Select RL	$263.04	$265.70	$261.82
D Select RL	215.95	225.52	221.00
SHOP S2S	No. 1	No. 2	
5/4	140.28	108.98	
6/4	139.33	107.79	
COMMONS S2 or 4S	No. 2	No. 3	
1 x 8" RL	110.28	79.46	
1 x 12" RL	115.94	77.28	
4/4 No. 4 Common S2 or 4S	63.13		

IDAHO WHITE PINE

SELECTS S2 or 4S	4/4RW	6/4RW	
Choice (C) RL	267.48	280.00	
Quality (D) RL	214.42	255.92	
COMMONS S2 or 4S	Colonial (#1)	Sterling (#2)	Stand. (#3)
1 x 8" RL	.....	148.79	103.53
1 x 12" RL	.....	155.77	104.99
4/4 UTILITY (#4) S2 or 4S RW&L	65.63		

SUGAR PINE

SELECTS S2 or 4S	4/4RW	5/4RW	6/4RW
#1 & 2 Clear RL	$282.57	$287.39	$288.10
C Select RL	268.67	278.14	277.86
D Select RL	236.11	240.85	238.21
SHOP S2S	No. 1	No. 2	No. 3
5/4	150.36	112.82	77.82
6/4	149.76	111.26	78.09
8/4	162.99	119.15	77.68

LARCH-DOUGLAS FIR

4/4 No. 3 Common S2 or 4S	$ 76.92
2x4 No. 1 Dimension RW&L	90.90
2x4 No. 2&Btr. Dimension RW&L	75.55

• British Columbia Log Market

Reported by C. D. Schultz & Co., Ltd., Vancouver, B. C., consulting foresters and engineers.
(Log prices are per thousand feet board measure.)

FIR—Log stocks down, demand heavy. Price range unchanged at $50.00 to $60.00 for #3's; $60.00 to $70.00 for #2's; and $70.00 to $80.00 for #1's. Peeler price range $80.00 to $90.00 for #3's; $90.00 to $100.00 for #2's; and $100.00 to $110.00 for #1's.

CEDAR—Log stocks unchanged, demand heavy. Price range constant on Shingle Cedar. Shingle Cedar price range $37.50 to $47.50 for #3's; $50.00 to $60.00 for #2's; and $65.00 to $75.00 for #1's. Lumber Cedar price range $67.50 to $77.50 for #2's and $77.50 to $87.50 for #1's. Tie Cedar price range $37.50 to $47.50.

HEMLOCK & BALSAM—Log stock down, demand weakening on lower grades. Lumber type and sorted gang type Hemlock remains $42.50 to $52.50 for #3's; $50.00 to $60.00 for #2's; and $57.50 to $67.50 for #1's. Balsam prices range $40.00 to $50.00.

• Southern Pine Prices (KD Stock)

	B&Btr.	C	D
Vertical Grain Flooring			
1x4 Heart	250.00	235.00	200.00
Flat Grain Flooring			
1x4	160.00	150.00	120.00
1x6	175.00	165.00	125.00
Drop Siding			
1x6 #105	191.00	175.00	130.00
1x6 #116	191.00	170.00	130.00

Boards & Shiplap	1x6	1x8	1x10	1x12
No. 1 (D) Grade	120.00	120.00	122.00	178.00
No. 2	83.00	88.00	84.00	97.00
No. 3	72.00	83.00	76.00	76.00

No. 1 Dimension	12'	14'	16'	18'	20'
2x4	98.00	98.00	101.00	118.00	123.00
2x6	100.00	104.00	101.00	115.00	120.00
2x8	97.00	97.00	95.00	115.00	120.00
2x10	110.00	110.00	115.00	130.00	135.00

No. 2 Dimension					
2x4	95.00	95.00	98.00	107.00	112.00
2x6	86.00	90.00	88.00	102.00	107.00
2x8	86.00	86.00	86.00	99.00	104.00
2x10	94.00	98.00	92.00	105.00	110.00
2x12	96.00	94.00	94.00	115.00	120.00

No. 3 Dimension 5454 KD					
2x4	76.00	76.00	80.00	86.00	91.00
2x6	73.00	73.00	73.00	80.00	85.00
2x8	75.00	74.00	74.00	75.00	80.00
2x10	67.00	72.00	67.00	72.00	77.00
2x12	67.00	67.00	67.00	77.00	82.00

• Red Cedar (industry standard) Shingles

Royals			
No. 1	24"	4/1	$16.25
No. 2	24"	4/2	$ 9.50- 10.50
No. 3	24"	4/2	5.50
Perfections			
No. 1	18"	5/2¼	$12.50-$13.25
No. 2	18"	5/2¼	6.75- 7.00
No. 3	18"	5/2¼	4.50- 4.75
XXXXX			
No. 1	16"	5/2	$10.75-$11.00
No. 2	16"	5/2	6.75
No. 3	16"	5/2	4.75- 5.00

Oregon Firms Reorganize

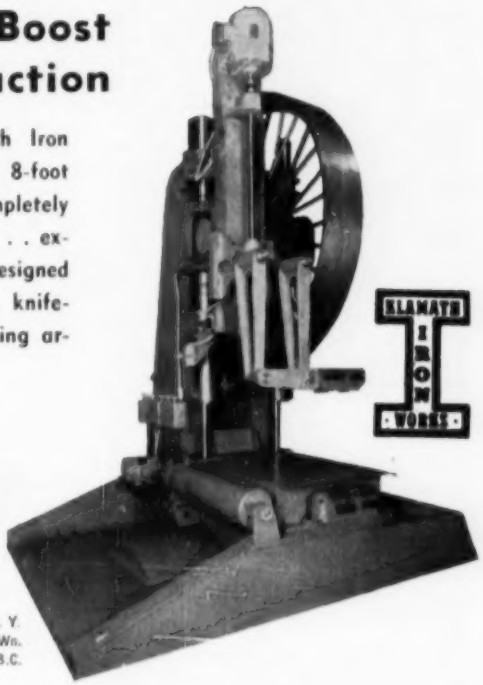
• Southland Lumber Co. interests owned by the Park Loading Co. of Swan Island; the Milton Timber Corp. and the Stallings Lbr. Co. of Oregon, Ltd., have disposed of their timber and mill holdings to Winn, Shinn, Schnider and Co. of Eugene, Ore. This company, in turn, has formed a new partnership with Jack Stallings to continue business under an expanded program, to be known as the Milton Lumber Co. of Oregon, Ltd. Headquarters, except for sales, will be located in Milton-Freewater, Ore.

Park Loading company of Swan Island will retain future sales of all products produced by the new organization. The expected capacity under the reorganization will be in excess of 100,000 board feet of dry studs per day.

The Klamath Iron BANDMILL

Designed to Boost lumber production

Shown here is the Klamath Iron Works Pacific Coast type, 8-foot bandmill. This unit is completely equipped with electric lifts . . . extra heavy construction . . . designed for ease of installation . . . knife-edge strain . . . roller bearing arbors.



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Washington Mach. & Supply Co., Spokane, Wn.
Electric Power Equipment Ltd., Vancouver, B.C.

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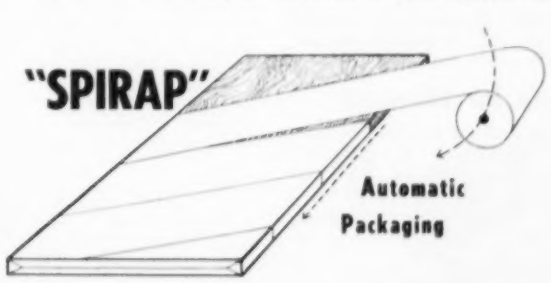
IMAGINE the competitive advantages of selling your panels in a neat protective wrapping. Investigate the new automatic "Spirap" machine. A 4-ft. x 8-ft. x 3-inch package of your panels wrapped in heavy kraft paper glued and completely sealed in 35 seconds at a labor and material cost of less than 50¢ per package. Automatically stacked in convenient lift truck loads. Machine may be inspected in plant operation.



Manufactured and sold by Coast Iron & Machine Works

1131 Dock St. • BRoadway 8379 • Tacoma, Washington

Designed by Industrial Development Co.

Many Major Lines of Machinery and Equipment Are Now Handled by Suppliers in Alaska

• While touring Alaska, THE LUMBERMAN talked with a number of machinery houses. Juneau and Ketchikan are the major supply centers in Southeastern Alaska; Anchorage serves the Seward, Cordova and Interior districts. Among the many major lines of logging equipment represented in the Territory are Skookum, McCulloch, Caterpillar, Broderick & Bascom, Edwards, Chrysler, Hyster, Esco, Skagit, Homelite, Titan, IEL, Oregon chain, International, Allis-Chalmers, Cummins, Twin Disc.

Northern Commercial Co., Juneau, states that the D7 is a popular machine around Juneau and that they are equipped to provide service or repairs. They carry all sizes of wire rope. They make frequent shipments to outlying camps via mail boat or barge, and they work closely with the airlines on parts deliveries. Prices on parts are same as Seattle plus freight.

Mel Roe, "NC" manager at Ketchikan, reports that the Chrysler 150 hp V8 has been adapted for successful use in small yarders. The McCulloch 4-30 power saw has proved popular, too.

Roe advised new loggers not to plan their equipment needs until they get up north and have looked closely at Alaska conditions. He believes a new operator should have enough capital to start up and run four months without income. "Underfinancing is probably one of the main 'bugaboos'—an operator ought to have $100,000 ahead to start. Cost accounting is another vital factor in success here. An operator has to be able to analyze his costs and to exercise good business judgment," he said.

Roe reports Skagits in the BX200 class are used by a number of operators; many smaller sizes are in use also. He also states that "Cat" D8s with Hyster drums have proved a good combination and utility tool.

Sales and service for most major chain saws are to be found in Ketchikan.

Tongass Trading Co., Ketchikan carries a large stock of chokers cut to size and a supply of Edwards wire rope in sizes ¼ to ½" plus Esco and Young rigging, block and hook supplies. They report that ordinary black-treated cable stands up the best in the tough Alaska logging.

The new interest in Alaska logging has been responsible for the establishment of several new dealer and distributor organizations. One of these is Alaska Cummins Diesel, Inc., distributors of Cummins diesel engines. This new company, of which Richard S. Newell is president, has offices in Anchorage and Ketchikan and headquarters in Seattle.

Chain Gear, Inc., Seattle, specialists in the field of power transmission service, have named three distributors in Alaska. These include: Northern Machine Works and Marine Railways, Ketchikan; Sitka Engine and Equipment Company and Marine Railways, Sitka; and Wrangell Machine Works, Wrangell.

FIRST PRODUCTION model of new undercut Monarch trimmer went to Gallacci Lubr. Co., Cloverdale, Ore. Sold by Caldwell Machy.

New Line for Monarch

• The first of a new series of trimmers and edgers for sawmills was completed recently at Monarch Forge & Machine Works, Inc., Portland, Ore.

The new line is being built after exhaustive study of existing machines of this type. Several improvements and design advances are being incorporated in the Monarch equipment.

The trimmer has automatic saw selection, operated from a keyboard selective control panel. The assembly will serve as a rough green trimmer. Because of its unique design, power belts can be changed, without disturbing bearings, by unfastening a single coupling.

A-C Announces New Grader

• Allis-Chalmers is introducing the "Forty-FIVE motor grader, a new heavy-duty unit powered by the new Allis-Chalmers ADS-516 six-cylinder, 4-cycle Diesel engine with its rated 120 maximum brake h.p. at 1600 rpm.

The grader weighs 23,800 lbs., of which two-thirds or 17,375 lbs. is on the tandem drive rear wheels, and 6,425 lbs. on the front wheels. Blade pressure is 10,950 lbs.

The "Forty-five" has finger-tip control box with toggle- type linkage affording increased leverage for smooth, accurate operation of moldboard, wheel lean and scarifier.

Other basic design features include a combination mechanical and hydraulic power steering; self-energizing brakes aided by a two-stage master cylinder; new double-disc master clutch with ceramic lining; self-aligning outboard bearings in the final drive where heavy roller chains running in full oil bath transmit power to the four tandem wheels; double universal joint drive shaft; needle-bearing universal joints grease-packed for life; and many others.

ORVILLE L. SMITH GEORGE DICKSON

Figure prominently in Seattle business sale.

Oregon Lumberman Is New Owner of Stetson-Ross Firm

• A major development in forest industry machinery circles is the purchase of the entire ownership of Stetson-Ross Machine Co., Seattle, by Orville L. Smith, well-known Oregon lumberman, formerly president of the Heppner Lumber Co., Heppner.

Under the new ownership, George Dickson remains as vice-president and general manager. It was announced that there will be no changes in personnel.

Stetson-Ross Machine Company, Inc., (the new company name) was started in 1907 by George W. Stetson, pioneer Seattle lumberman, and Harry B. Ross, who later invented the Ross Carrier. Mr. Ross died at his Benton Harbor, Michigan, home October 25, 1955.

From 1920 until his death in 1952, W. T. Pritchard was president. After Mr. Pritchard's death, Gerald Frink, president of Washington Iron Works, succeeded Mr. Pritchard as president and chairman of the board. Other board members were: sec.-treas., H. F. Jefferson, vice-pres., Nettleton Timber Co., Seattle; W. P. Gullander, financial vice pres., Weyerhaeuser Timber Co., Tacoma; Allan F. Kennedy, vice-pres., Western Division, Henry Disston & Sons, Inc., Seattle; and George Dickson, vice-pres. and general manager. Mr. Dickson has been with the Company since 1931. M. L. Veatch, long identified with the sales end of the Company, but who retired several years ago to build and operate an ultra modern motel at Roseburg, Ore., was one of the largest shareholders.

Today, Stetson-Ross planing mill equipment is sold throughout the world. The engineering of the company's products is under the supervision of Fred A. Nicholson, who has been chief engineer for the past 25 years.

MacWHYTE CO. WILL LOAN you its latest movie, "Lifeline," for a free showing to your club. It's a 16 mm 22-min. sound film telling story of use and manufacture of wire and wire rope. For reservation wire Forest J. Nelson, MacWhyte Co., Kenosha, Wis.

New Products & Services

for the forest industries

This Carrier Rated at 5 Tons

• Syncromesh transmission, full hydraulic control of load hooks and radi-arc steering are features of this new model straddle carrier introduced by the Ross Carrier Division of Clark Equipment Co.

Named the Series 71, the machine has a rated capacity of 10,000 lbs. and is the only carrier available designed for that rating. It replaces Clark's previous model Series 70 and incorporates several major improvements.

Operator visibility and comfort have been increased by moving the driver's seat to the center of the machine, instead of over the rear axle, and lengthening the wheelbase to 90 inches.

Power choices are either a Ford 130 hp engine or a Hercules 91 hp, both gas or LP-gas. A torque converter is optional equipment. Road speed is 30 mph. Use of the syncromesh transmission, with three speeds both forward and reverse, eliminates all remote shifting linkage. Control levers are the direct type.

A one-piece hood folds back and exposes the whole engine.

The Series 71 is available in nine models capable of carrying loads ranging from 42 in. to 54 in. in height and 40 in. to 52 in. in width.

D8 Rock Guards Now Standard

• Caterpillar Tractor Co. has announced that effective immediately, track guiding guards will be included in the standard specifications of all D8 Tractors.

The track guiding guards consist of three heavy plates welded to the underside of each track roller frame. A guide is located on each side of the idler and on the outer side of the sprocket.

A new heavy-duty track roller guard attachment replaces the one presently listed in the D8 Tractor Price List. This new guard group, which is shorter in length, is adaptable only to D8 Tractors with the track guiding guards.

* * *

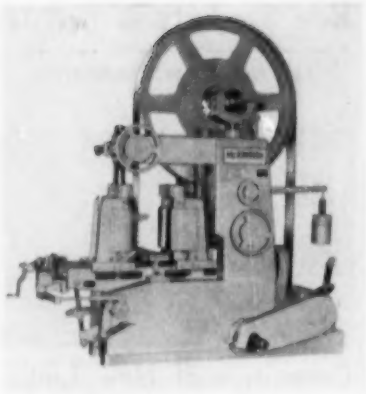
VICKERS MODEL 4CG-03 check valve has 8-gpm capacity, is recommended for use in systems having pressures up to 2000 psi.

Vickers Extends Valve Line

• The new gasket-mounted pilot-operated check valve for use with ⅜-in. piping in industrial oil-hydraulic systems (shown above) is now available from Vickers Inc., Detroit.

The new unit (model 4CG-03) is of spring-closed poppet type construction. Spring closure provides uniformly consistent operation regardless of valve mounting position. These valves can be arranged in control systems to block flow in a given direction until opened by remotely applied pilot pressure and to allow free reverse flow.

The new units are available with either 30, 75 or 150 psi cracking pressure. Mounting subplates for the new valves are also available from the manufacturer.

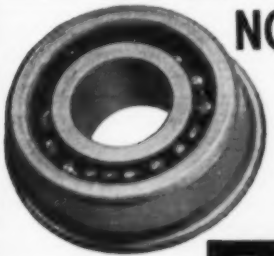


Many Improvements Built Into New McDonough Resaw

• Completely new from base to top wheel, design of the McDonough 54" vertical band resaw reflects many engineering advances.

Improvements in materials and fabricating techniques in recent years have made practical such things as the one piece top wheel casting of high tensile iron. Other design improvements include a massive box type saw guide arm which provides a maximum saw support for extra accuracy; a compact, streamlined column casting designed for maximum strength without excessive weight and an extra heavy cast iron base with the roll cradle stand cast as an integral part.

Typical engineering improvements include a non-rotating top wheel shaft around which the top wheel rotates on heavy duty Timken bearings; an ultra-sensitive, flexible feed works which will tilt up to 14°. A lever set and a power opening and closing device are available at extra cost.



Showing Pressed in Ball Bearings

NOW! Ball Bearing Roll Top Chain

Portland Chain's PORTALLOY roll top provides the easiest transmission to speed up your lumber handling.

PORTALLOY roll top is available in rubber covered chain for handling select grades . . . or critical inspection.

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PORTALLOY Roll Top Chain

New Products & Services

for the forest industries

Capacities of New Link-Belts Range to 35 Tons

• Five new truck-crane models, ranging from 12½ to 35-ton lifting capacity, are now being offered by Link-Belt Speeder Corp., Cedar Rapids, Iowa. Model HC98 of 30-ton capacity is pictured above.

Called "Zephyrcranes" because of their speed in moving from job to job. All feature Speed-o-Matic power hydraulic control—which permits the operator to control all working operations with a "flick of the wrist." This feature alone, by reducing operator fatigue, is said to increase output up to 25 per cent or more.

All have power hydraulic operated clutches that are self-compensating for heat and normal lining wear. They are fully convertible to standard front end attachments, and are available with torque converter power units.

Another important feature, available on all models as an extra, are Speed-o-Matic reversing clutches for either or both main drums. This feature permits power controlled load lowering of main hoist line and jib whip line. In logging operations, it allows the operator to use either line for a load line and still have a clutch remaining for slack kicking.

Model HC-58 and HC-68 (12½ and 17½ tons capacity at 10 ft. radius) are designed for fast and easy transportability—all purpose lifting and digging. Both are fully convertible and are said to meet highway weight regulations in most localities. Features include independent rapid boomhoist with power raising and power controlled lowering by means of hydraulic actuated clutches and Patented Retractable High Gantry which is quickly raised or lowered under power.

The HC-88, HC-98 and HC-108 Zephyrcranes are of 25, 30 and 35-ton capacity at 10 ft. radius.

Other New Machines

The Zephyrcranes are one segment of 17 new models recently introduced by this company. In addition, the company also offers 13 crawler-mounted models and 6 wheel-mounted, self-propelled models.

Full "Red Tang" Line Available

• Simonds Saw and Steel Co. is now furnishing a complete line of "Red Tang" Files including American pattern files and rasps, "American-Swiss" Swiss pattern files, "Vixen" milled curved-tooth files and holders, and rotary files and burrs, (High Speed Steel and Carbide).

Simonds can now supply a file for every need in machine shop operations, saw filing, garages, body repairing and for special applications.

Complete information on the newly expanded line of Simonds "Red Tang" Files may be obtained from branches located in Boston, Chicago, San Francisco and Portland, Ore., or from the Fitchburg home office.

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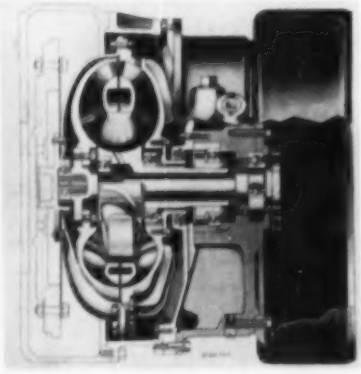


THIS NEW FULLER torque converter coupling incorporates an SAE No. 3 clutch housing behind the converter. The output shaft is flanged for attachment of a single plate clutch flywheel.

Many Uses for Coupling

• Three new Fuller torque converter couplings nominally rated at 280 foot pounds of torque are now available.

These couplings consist of three simple elements: impeller or pump, runner, and reaction member. With single stage two phase design, the reaction member is mounted on an overrunning clutch which permits rotation with the runner, and operation as a straight hydraulic coupling for high efficiency. The change from 2.1:1 conversion stage operation to straight hydraulic coupling stage and back is automatic, depending only upon the amount of torque required in the drive line.

Advantages of the 2.1:1 torque multiplication and smooth fluid coupling operation provided by the new Fuller Torque Converter Couplings include obtaining faster work cycles, with less downtime and less maintenance. Typical applications are: fork lift trucks, winches, loaders, self propelled cranes, truck cranes, lumber carriers and diesel and gasoline locomotives.

New Couplings Flexible

• Dodge Taper-Lock chain couplings (see cut) have recently been added to the line of Taper-Lock sprockets and roller chain. This line has gained widespread use since its introduction by Dodge Mfg. Corp. of Mishawaka, Ind., more than a year ago.

The new couplings are of a flexible type and permit sufficient relative movement between the hubs to accommodate slight angular and parallel shaft misalignment. The coupling provides a strong and positive, yet compact, direct coupling of the shafts.

Features include Taper-Lock bushings, which are readily available from distributors' stocks in the desired sizes (no reboring is required).

The chain is a double-width, standard precision chain. The additional bearing area permits higher horsepower ratings and longer wear life. Quick disconnecting of the shafts is possible by removing the one coupling pin and unwrapping the chain from the hubs. Sprocket teeth are accurately cut and hardened.

Oil Clutch Available for D4

• A new oil clutch is now available as an attachment for D4 Caterpillar tractors.

It is similar in design to those in the D6, 7, 8 and 9 tractors and features metallic-faced clutch discs, a self-contained gear-type pump and oil supply clutch brake for easy gear shifting.

The three metallic-faced plates on the new D4 oil clutch are separated by oil films at all times except for the last revolution or two as the clutch is engaged. Thus, there is little opportunity for wear and heating to occur. The oil system includes an oil pump with screened inlet and passages which carry oil to all parts of the clutch.

Clutch adjustment, while easily made, is seldom required; and plate replacements should be as infrequent as engine overhaul, under normal conditions, and may not be required even then.

The oil clutch is especially desirable in bulldozing work and other jobs where frequent engagement, disengagement and slipping of the flywheel clutch are necessary.

News of Suppliers

- **Machinery salesman**
- **Distributors**
- **Manufacturers**

ART BELCHER

He moves from the Pacific Northwest to Los Angeles to begin new duties.

TD Transfers Belcher to L.A.

• Twin Disc Clutch Co. has completed several steps in a program of further expanding sales operations at Los Angeles and to provide more effective sales of Twin Disc products on the west coast.

N. F. Adamson, vice pres., sales, announces that A. W. (Art) Belcher, formerly in charge of the Seattle office of Twin Disc, has been appointed district representative in charge of all west coast sales and service operations.

A. E. (Duke) Young, at one time district manager at Seattle, continues residence in Seattle, where he will act in a consulting capacity for Twin Disc.

Pierce Tyrrell, formerly dist. manager, Los Angeles, has been promoted to industry manager—rubber tired vehicles, and transferred to the hydraulic division, Rockford, Ill.

In addition to his responsibilities in working directly with all west coast manufacturers to correctly apply Twin Disc products, Belcher will assist Twin Disc dealers and parts stations in maintaining the high standards of service. These west coast dealers now include:

California Truck & Industrial Equipment Co., Bakersfield; N. A. D'Arcy Co., Huntington Park; Charles W. Carter Co., Los Angeles; Charles A. Fowler Co., San Francisco; California Equipment Co., San Francisco (all Calif.); Wilson Equipment Co., Ltd., Vancouver, B. C., Canada; Hydra-Lines, Inc., Portland, Ore.; Power Transmission Products, Portland, Ore.; Bowers Machine Co., Seattle, Wash.; Chain Gear, Inc., Seattle, Wash.

Belcher, graduated from the Univ. of Pittsburgh in 1943 with a degree in mechanical engineering, joined Twin Disc in 1948.

* * *

• **Fuller Mfg. Co.**, Transmission Division, announces a $1,000,000 addition to its Mossel Ave. plant in Kalamazoo. Production of heavy-duty transmissions will be greatly augmented by the addition, which will be used for turning all gear blanks before cutting teeth, heat treating and further processing.

Two More Worthington Outlets

• Worthington Corp. has appointed Western Equipment Co. of Portland and Eugene, Ore., distributors for Worthington Construction equipment lines in Oregon and the Columbia River counties of Washington. Both the Portland and the Eugene stores will carry large stocks of Worthington units and parts, as well as maintaining complete repair service. The Portland store of Western Equipment Co., located at 2244 N.W. Savier St., is headed by A. E. Vanstrom, partner of the company. The Eugene store at 1360 West First St. is headed by M. W. McCann, partner.

Announcement is also made by Worthington Corporation that the Cal-Ore Machinery Co. of Medford, Ore., will still continue to maintain sales and service for Worthington truck mixers and contractors pumps in the Medford area.

* * *

• **John C. Long** of Bethlehem, Pa., for many years public relations manager of the **Bethlehem Steel Co.**, was recently in the west for conferences with officials of the Bethlehem Pacific Coast Steel Corporation and the press. He said that Bethlehem looks forward to continued expansion of industry and business in the west.

* * *

V-Belt Sales Manager Visits

ROBERT B. PARK (L), manager, San Francisco branch, and R. B. HAZARD (r), sales manager, rubber and packing divisions, Raybestos-Manhattan, Inc., were caught by THE LUMBERMAN's camera as they went over some of fine points of Poly-V belt and sheave. Hazard was on the west coast this fall from Passaic, N. J. He made a swing of the western area with S. V. V. Hoffman, Pacific Coast manager, who makes his headquarters in Los Angeles.

* * *

• **Eugene Equipment Co.**, Eugene, Ore., is now distributor for **Brunner & Lay** complete lines of pneumatic tool accessories. These items come in both drill steel and bits in both carbide and steel. Complete stocks are carried of these lines. This company has recently paved their entire parking space with black top. There is ample room for trucks, trailers, and cars. Gordon Lambert is the manager of the company.

ROBERT E. HUNTER, former director of sales for General Motors Diesel Ltd. of Canada, has been appointed general sales manager of the Detroit Diesel Engine Division of General Motors. He's engineer grad of Mich. U.

A. W. (Bill) OLIVE of Vancouver, B. C., has been appointed sales repr. for Hansel Engineering Co.'s line of barkers and chippers. For 8 years with CZ's International Pulpwood Supply, has wide experience in chipping, barking.

* * *

C. G. MONNETT, JR., vice pres., Dependable Machine Co. Greensboro, N. C., stopped at the Seattle offices of THE LUMBERMAN recently during a driving tour of the country. When he arrived in Seattle, Monnett had covered 6000 miles; along the way he called on numerous woodworking dealers. Besides heading up the sales program of Dependable Machine, Monnett is the author of a new book entitled, "Knife Grinding and Woodworking Manual." Dependable Machine manufactures a line of woodworking machinery including moulders, shapers and rip saws.

* * *

• Ground has been broken for the new $500,000 West Coast assembly plant of **Reliance** Electric & Engineering Co. in the Millsdale industrial area, Burlingame, Calif. Facilities at Millsdale will be shared with the **Reeves** Pulley Co. The plant will be some 10,000 sq. ft. in area, when opened March 1, 1956, with 2,000 sq. ft. for office space.

* * *

• A completely staffed regional office has been opened in Houston, Texas, to assist in the sale of **Chrysler** industrial and marine engines. **D. D. Chene**, former sales repr. in the southwest area, is the regional manager. Location is 713 Prudential Bldg., 1110 Holcomb, Houston.

* * *

• William V. Horgan, representative of **Nicholson File Co.** in the Northwest for many years, died recently in Wenatchee, Wash. Mr. Horgan joined Nicholson in 1938. His territory will be temporarily served by W. C. Gettemy, who represents Nicholson in the Rocky Mountain area.

News of Suppliers

Mishawaka Man in West

RALPH HANES (L), who directs advertising for Dodge Mfg. Corp., Mishawaka, Ind., recently spent several weeks on the west coast conferring with Dodge representatives and dealers. While in Portland, he met with MARION STUDEBAKER (right), who represents Dodge in the state of Oregon.

* * *

• **Chester G. Hawley** has been appointed gen. manager of sales for industrial division, **Jeffrey Mfg. Co.**, Columbus, O., announces J. E. M. Wilson, vice pres., sales. The industrial division is one of three main divisions and handles distribution of transmission, conveying and processing equipment. During 1952, he served a term as chief of the conveyor section of the National Production Authority in Washington, D. C.

• **Precision Engineering Co.**, Sacramento, Calif., is building a new 50x80 addition to its plant. The space will be used for new executive offices and a warehouse. Better crane and unloading service will also be offered, according to John Vrilakas, owner of the company.

Precision is also installing a new Universal type grinder for grinding transmission shafts, and the company has also put in a honing machine for automotive and aircraft engine blocks.

Price sheets that classify the costs of hard chroming planer bed sheets are now available, according to Vrilakas.

* * *

• **Roy E. Mullin**, who introduced the Powr-Pak 4-wheel drive unit to domestic and foreign markets, has been promoted to the newly created post of general sales manager, **Napco Industries, Inc.**, Minneapolis. He is succeeded as sales manager of Napco Products Division by Wm. Gorman.

* * *

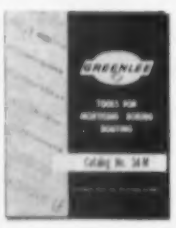
• **P. L. Crooks & Co.**, Portland, Ore., distributors for many nationally known lines of logging and construction equipment, recently opened up a sales and service store in Eugene, Oregon at 1810 7th St. West. Wm. Mitchell, who has been with P. L. Crooks & Co. for a number of years, is manager of this new branch.

Kenworth Pair in New Posts

LEWIS T. GERLACH (L) and ROBERT J. HUTCHINSON, now fill newly created sales management positions for Kenworth Truck Corp., Seattle. Gerlach is asst. general sales manager in charge of distributor sales and Hutchinson is sales manager for off-highway equipment. Gerlach has been at Kenworth continuously since 1936. Hutchinson has a degree in mechanical engineering from Oregon State College and joined Kenworth also in 1936. For four years, Hutchinson has supervised government contracts and he will continue to handle this work in addition to his new appointment. Both men, who had an active hand in Kenworth's World War II equipment manufacturing program, will assist R. D. O'Brien, vice president, sales, in sales management for Kenworth.

* * *

• **John Hanna**, president of **Hanna Engineering Works**, Chicago, who has held title of chief engineer of the company since 1921, has announced appointment of **John T. Ellis, Jr.**, as new chief engineer. Ellis formerly was with Underwriters Laboratories.



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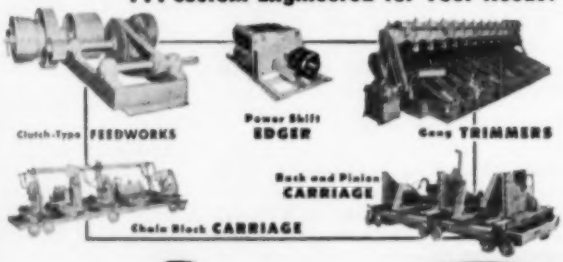

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Profit with PETERS Performance

News of Suppliers

New Dealers for Prentice

• E. V. Prentice Co., Portland, Ore., manufacturers and distributors of machinery and equipment for the veneer and plywood industry, have four new distributors on a nationwide basis. They will handle the Victor line of jointers, clippers and other equipment plus Raimann knot-boring and plugging machines and veneer patchers.

The new distributors and their territories are as follows: Chas. F. Francis Co., Inc., Huntington, Ind., central area of the U. S.; Ericsson Merritt, Inc., Lockport, N. Y., New England, New York and Pennsylvania; Sutton Woodworking Machine Co., Sedgfield Inn, Greensboro, N. C., Virginia, south Atlantic coast and eastern Tennessee; George A. Risell, Alabama and Georgia.

* * *

• New warehouse facilities have been opened for the first time in Portland, Ore., by **American Sisalkraft Corp.**, announces Robert S. Youngberg, manager of the Western Division, 55 New Montgomery St., San Francisco. Philip Chapple, the Oregon and Southern Washington representative, will handle sales of Sisalkraft reenforced papers from the new outlet.

HERE ARE THE DEALERS who attended the special display of the new TerraTrac crawler tractors at Viking Equipment Co.

New Tractor Display Attracts Many Dealers to Seattle

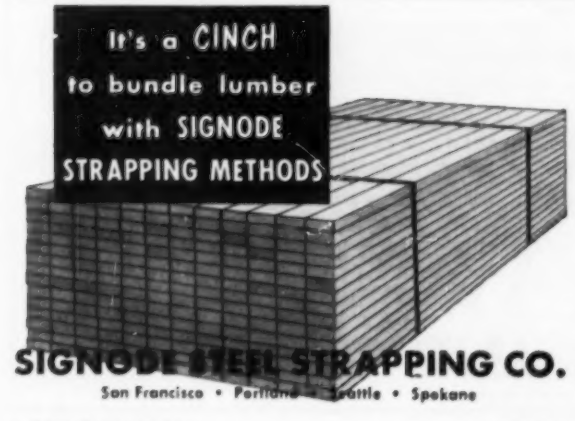
AMERICAN TRACTOR Corp., Churbusco, Ind., and the northwest distributor, Viking Equipment Co., Seattle, jointly sponsored a dealer showing of the new Terratrac tractor in Seattle in early November. Officials responsible for the show included (left to right), JOHN FRAY, JR., manager of Viking Equipment Co., ROBERT ISAACSON, Viking president, D. A. MILLIGAN, sales manager of American Tractor (seated in the Terra-Trac), and G. A. W. BELL, JR., western regional sales manager.

* * *

• New manager, Part Sales, for tractor group of **Allis-Chalmers Mfg. Co.**, is **J. D. Harmison,** formerly tractor sales manager in the farm equip. div.

* * *

• **Donald R. Shaffer** is now district manager of the north central district of the Eastern Industrial Truck Division of Hyster Co. He is a graduate of Univ. of Oregon and joined **Hyster** in 1948.



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SAWMILL & LOGGING MACHINERY
There are good reasons why over 500 sawmill and logging operators have decided on Schurman equipment for their operations. It will pay you to investigate Schurman's complete line of quality machinery.
EDGERS—A complete line of both Stub Type and Table Type Edgers in a wide range of sizes are available.
TRIMMERS—Air and Wheel Type Trimmers for sawmill and planing mill application . . . available in the size to meet your need.
LOG BUCKING UNITS—Famous "Log Boss" is the answer to all cut-off and haul-in problems for operators with large runs of small timber.
HOISTS—Hoists available to handle a multitude of lifting and pulling jobs. Sizes for all-round utility or extremely heavy log loading and lifting.
Special Machinery Made To Order
Since 1934
Schurman Machine Works, Inc.
WOODLAND, WASHINGTON

World's Largest Winch Develops Pull of 76,000-lbs.

• Hyster Co. now is producing the world's largest towing winch as matched-design equipment for the new Caterpillar D9. Pictured above, the new winch, model D9A, develops a line pull of 76,000 lbs., 15,400 lbs. greater than the Hyster D8D winch.

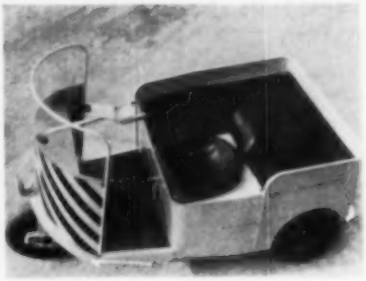
The unit features a constant mesh transmission, flexible cable controls, built-in drawbar, cast alloy-steel drum, 15-inch brake, hardened gears throughout and brake compartment sump. An automatic brake is available as optional equipment. Net weight is about 3,250 lbs. Barrel diameter of the drum is 16 inches, flange diameter is 27 inches and barrel length 11 inches. The cable capacity is 269 feet of 1⅛ inch line or 217 feet of 1¼ inch line. The new D9A winch is available in two versions, one for the direct drive Caterpillar tractor, the other with alternative intermediate gear train to suit the D9 torque converter model.

Also announced by Hyster is the production of the two new Hyster logging arches: the 98 with tracks and the 98R with rubber tires. Both models are designed for heavy duty logging operations with either Caterpillar D9 or Caterpillar D8 tractors.

Additional information and specifications can be secured from the company.

A COMPLETE LINE of split flange type hose fittings has been announced by Aeroquip Corp. Available in straight, 45 and 90 degree assemblies, the new steel fittings are designed for use with Aeroquip's single wire and double wire braid hose. The four bolt split flange features ease of positioning in installations, and rapid disassembly. The fittings conform with all S.A.E. specifications and are available in all sizes from ½ inch thru 2 inches.

* * *



Handy Car for Plant Travel

• West Coast Machinery Co., Stockton, Calif., is now manufacturing electric industrial cars (see cut) that will have many uses in the lumber industry.

Principal use would be for the transportation of sawmill supervisory personnel around the plant and yard, carrying the night watchman swiftly on his rounds, and hauling light parts or materials about a large plant.

The cars are electrically propelled, so there is little danger of fire. They are ruggedly built and can be operated at less than 3c per mile. Some of the models can carry up to a half ton pay load.

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Equipment Deliveries

• New machinery on the job means more production at lower unit costs for the operators mentioned here.

Log-getter in the Rain Belt

THIS NEW OLIVER OC-12 crawler tractor, owned by Earl Karshner, Hoquiam, Wash., well-known independent operator in the Grays Harbor area, has recently been operating in timber near Copalis, Wash. Logs go for pulp. This Oliver diesel unit delivers 53 d.b.h. and has wide tracks. Auxiliary equipment includes a Carco E24 winch, Allied hydraulic straight blade dozer and a Commercial arch. The tractor was sold through Pacific Hoist and Derrick, Seattle.

* * *

• Recent deliveries of new machinery have been made by **Schurman Machine Works**, Woodland, Wash., to three Oregon companies: stub edger, 6"x48", to William Donahue Lumber Co., Langlois; stub edger, 4"x42", to Wolf Creek Lumber Co., Wolf Creek; random length, automatic double-end wheel trimmer to Taylor Lumber Sales, Inc., Sheridan.

* * *

• Wetsel-Oviatt Lumber Co., Omo Ranch, Calif., has taken delivery of a new "Cat"D8 with Hyster winch from Holt Bros., Stockton. E. R. "Tubby" Nelson, popular logging equipment salesman with Holt Bros., and Mrs. Nelson enjoyed a two and a half months trip through Europe this summer.

• Glenco Forest Products Co. has installed a new 25" **Stetson-Ross** Model 6-10-A1 planer at the Greenville, Calif., plant, along with a new break down hoist, built by the **Capitol Machine & Welding Works**, Sacramento, and a new dry chain. The installations were made under the direction of E. L. Walters, resident manager.

Six new **Diamond T** logging trucks, powered with 350 h.p. butane-burning **Hall-Scott** engines, and six new **Page & Page** trailers were delivered to the Greenville operation this summer.

* * *

• Companies with new installations and orders of **Nicholson Rotobarkers** include Simpson Paper Co., Everett, Wash., which has ordered a 50" Nicholson mechanical barker for the plant wood room. Canadian Western Lumber Co., Fraser Mills, B. C., will soon install a 60" barker.

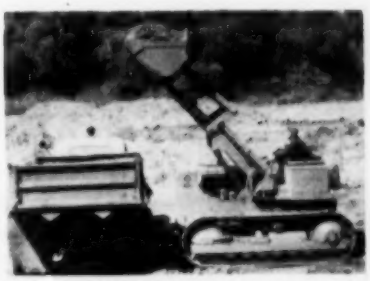
In early 1956, Nettleton Lumber Co., Seattle, is expected to start operation of a 50" Nicholson unit in the log slip. In the south, Nicholson recently sold barkers to Dierks Forests, Inc., Mountain Pine, Ark.; and to the Olin Mathieson Chemical Corp. plant at Winfield, La., Olin interest's second such barker. Just placed in operation is a new 60" Rotobarker at the Santiam Lumber Co., Lebanon, Oregon.

To improve manufacturing facilities Nicholson has moved his plant from the Ballard district of Seattle to Auburn, Wash.

* * *

• Grizzly Creek Sawmill, Nevada City, Calif., took delivery of an **International TD 24** with International 'dozer and **Carco** winch from **Sacramento Valley Tractor Co.**, Sacramento, Calif.

E. L. Holbrook Logging Co., Nevada City, Calif., has taken delivery of an International TD18 tractor with International 'dozer and Carco winch.



ONE OF TWO NEW diesel crawler units is this HD-6G tractor shovel. The other is the new HD-6.

Allis-Chalmers Own Diesel Powers New HD-6, HD-6G

• Allis-Chalmers has announced two new diesel-powered units, the 12,400 lb. HD-6 crawler tractor and the 19,600 lb. HD-6G tractor shovel (pictured above) with a rated capacity of 1½ cu. yd.

Many features found in other crawler tractor models recently introduced by Allis-Chalmers, including the HD-21, HD-16, and the HD-11 and HD-11G, are incorporated in the HD-6 and HD-6G.

The heart of the HD-6 and HD-6G's newly engineered power train is the Allis-Chalmers HD-344 diesel engine, a four-cylinder, four-cycle unit that develops 57 net flywheel h.p., 45 h.p. at drawbar and 55 h.p. at the belt.

In the HD-6 the maximum drawbar pull is approximately 12,650 pounds. It has five forward speeds ranging from 1.5 mph in first to 5.5 in fifth gear, and 2 mph in reverse. The HD-6G has four forward speeds which also range from 1.5 to 5.5, and two reverse speeds at 2 to 4.1 mph.

Special interchangeable equipment for the HD-6G includes rock, drag and light materials bucket; an angle-dozer and two bulldozer blades; crane hook; trench hoe; lift, tine, and rock forks. Accessories include replaceable bucket teeth and a rear outlet from the shovel hydraulic system.

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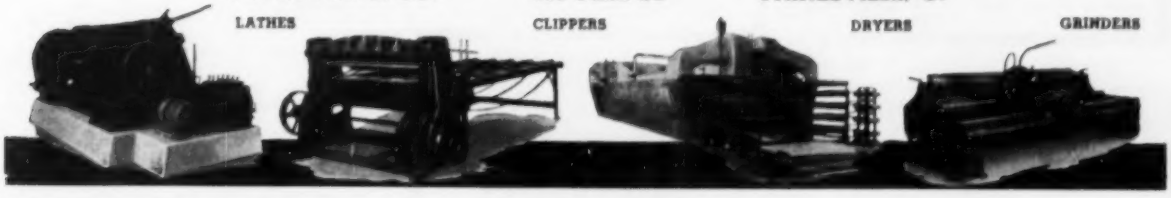

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Hansel Engineering Co., Seattle

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J. W. Minder Chain & Gear Co., Portland, Los Angeles

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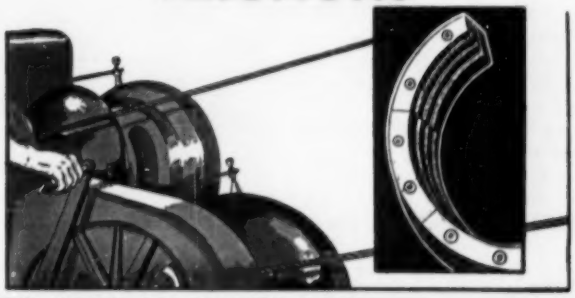

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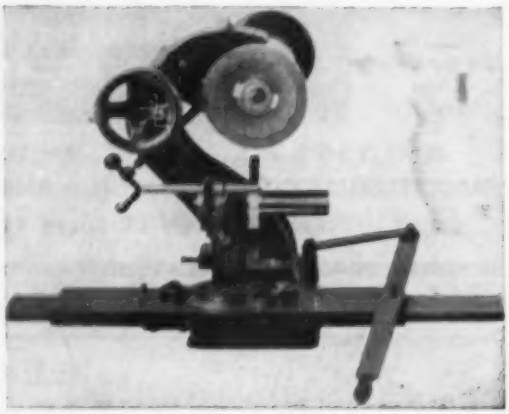

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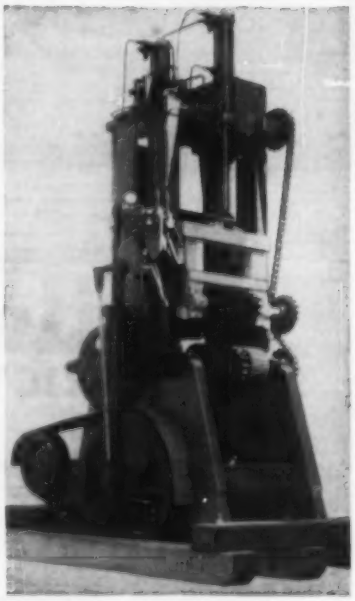

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Seattle Boiler Works, Seattle, Wash.

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Mereen-Johnson Machine Co., Minneapolis, Minn.
Newman Machine Co., Greensboro, N. C.
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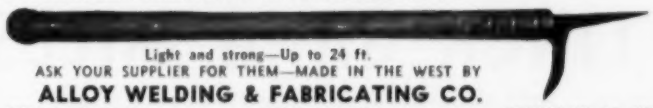

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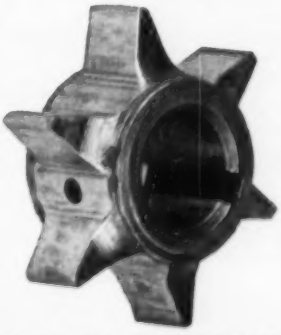

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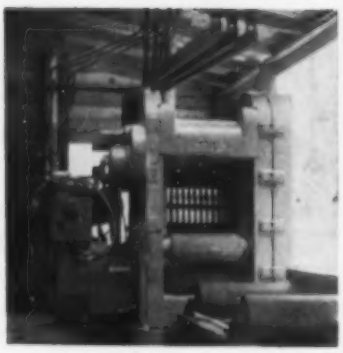

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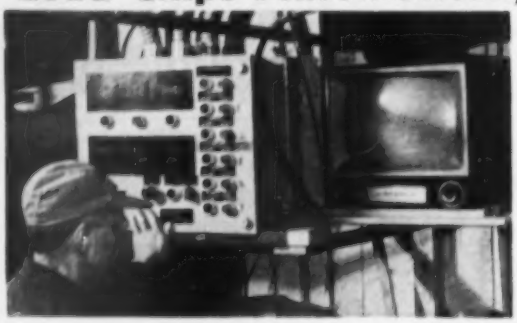

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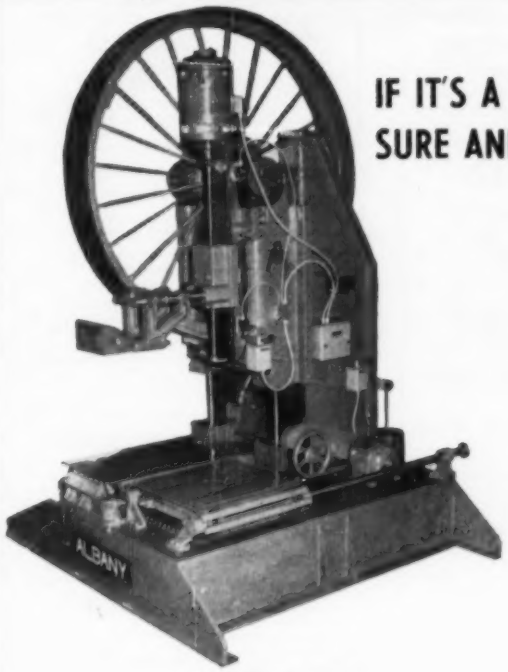

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2—512 Newman Planers, all ball bearing, double profiles
1—Yates C8S 8" Electric Moulder
1—Yates C89A Moulder motorized, bottom cyls, top and side heads, belt driven, ball bearing, 12" heads.
1—Woods 4048 30" Planer, ball bearing
1—Newman 10" all electric Moulder, 4 head
1—Woods No. 131 8" Moulder
1—PD Yates 109 Heavy Duty Moulder, 15 x 6, 6-knife, and 6-head, top and bottom cyls.
1—American 77 Planer 9", 6-knife round heads, double profile

MISCELLANEOUS

1—281 Band Ripsaw
1—Yates 283 Resaw, 44" tilt rolls, motor V belted
1—54" Horizontal Mershon Resaw, practically new to run in conjunction with matcher for making siding.
1—54" Mershon Standard Vertical Resaw.
1—66" Mershon Resaw, anti-friction bearings, with filing room equipment, 18 saws
1—54" American Resaw
1—American #40 Straight Line Ripsaw
1—Automatic Armstrong No. 18 Circular Cut-off Saw Sharpener
1—Mattison Straight Line Cut Off Saw, motorized, No. 244
1—Yates No. 235 Cut Off Saw
1—Hanchett No. 40 Automatic Gang Saw Sharpener
1—Yates 213 Glue Jointer, motorized
1—American No. 112, 6 x 26 Double Surfacer
1—Phoenix Band Mill 6'
1—Peters Carriage 16' with three 54" opening head blocks
1—48" Edger, all ball bearing
3—used Feed tables—Woods, Idaco & American
1—used 36" motorized fan
1—New Brooks AC Induction Motor, type DP 60 cycle, 3 phase, 30 HP, 220-440 volts
New General Machinery Company Feed Tables
New General Machinery Company Circular Ripsaw, motorized, ball bearing
New General Machinery Company Double End Trimmer
New General Machinery Company Knife Balancing Scales

CARRIERS

1—Ross Series 91-7956, 52 x 57 package
1—Ross Series 90-6544, 52 x 40 package
1—Ross Series 90-6152, 48 x 40 package
3—Ross Series 90-6556 Carriers

All Used Machinery Subject to Prior Sale

BADER MACHINERY COMPANY

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Spokane, Washington Phone: Keystone 8002

BUYERS GUIDE and CLASSIFIED SECTION

GANG SAW FACTS

Over 30 years of experience and data covering the methods of gang sawing.

THE MILL ENGINEERING & SUPPLY CO. Engineers experience totals over 75 years of designing and development on their gang saws.

Learn about the advantages to be obtained by installing one of the MILL ENGINEERING GANG SAWS.

We can help you in planning a new gang mill or adapting a gang saw to your present operation.

WE HAVE $$$ EQUIPMENT

WESTERN shotgun feed 12" x 42' new.
ARMSTRONG No. 6-R. H. band saw grinder, W-motor.
PACIFIC circular resaw fully ball bearing.
WORTHINGTON—165 cfm compressor, W-40 hp motor, V-belt drive, Base, air tank and piping.
1—300 hp. 600 rpm slip ring motor
1—250 hp. 600 rpm slip ring motor
1—150 hp. 1200 rpm slip ring motor
1—100 hp. 720 rpm sq. cg. motor
1—10 hp. 16 rpm western gear motor
1—10 hp. 20 rpm western gear motor
1—10 hp. 39 rpm western gear motor

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STAR VALUES

PLANERS—MATCHERS—MOULDERS

Used #500 Newman 6" x 14" ball brg. planer-matcher, 6-knife, and feed table.
Used 77A American Model 5, 6" x 15" planer-matcher, 8-knife, and feed table.
Used A-66 Yates-American 6" x 15" electric planer-matcher, 8-knife.
Used #134M Woods 4" x 10" 5-head electric moulder.
New #512 Newman 8" x 16" planer-matcher, 8-knife, ball and roller bearing.
New #500 Newman 6" x 14" planer-matcher, 6-knife ball and roller bearing.
New #8-B Newman 4" x 14" planer, matcher and moulder, ball bearing.

SAW MILL EQUIPMENT

Used Model 75 L-M 7½ HP Pond and Deck Saw, 7' bar.
New 6" x 54" Schurman stub edger.
New 4½" x 30" Miner 3-saw gang edger.
New No. 35 Diamond hog.

BAND RESAWS—BAND RIP SAWS

Used 54" Mershon vertical band resaw, left hand.
Used 60" Fay & Egan vertical band resaw, left hand.
New K-52" Turner vertical single band resaw, left hand.
Used 66" Mershon vertical band resaw, right hand.

WOODWORKING MACHINES

Used #32 Whitney 6" x 30" single surfacer, ball brg., DMD.
Used #386 Greenlee vertical gang.
Used #55 Buss double surfacer, ball bearing, DMD.
Used American 40" band saw for shakes.
Used #600 Newman 24" x 8" single surfacer, 5 HP, ball bearing.
Used #14 & #36 Irvington 5 HP swing saws, roller bearing.
New S-830 Newman 30" x 8" single surfacer, 7½ HP.

FILING ROOM EQUIPMENT

Used Dependable sidehead grinder.
New G-71 Newman sidehead grinder.
New G-232 Newman hydraulic knife grinder.

BAND AND CIRCULAR SAW MILLS

Used #2 American saw mill, ball brg.
Used #4 Star saw mill, ball bearing.
New American Porta-mill

COMPRESSORS, STATIONARY

Used Model ER-1 Ingersoll-Rand 9" x 8" water-cooled, 110 CFM.
Unused Smith water-cooled, bare, 110 CFM, special price.
New M-40 Worthington air-cooled 158 CFM.

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Power, International UD24 Diesel
Planer, Fortin #91, with self feed table and grinder
Resaw, Richer Machine Works #3
Rip-Saw and table
Cut-off Saw
Shaving fan and piping to each machine and disposal piping
Shafting, and boxes
Pulleys, Belts and several resaw blades; all tools and large assortment of planer knives and filing room equipment

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International TD24 Tractor, serial No. TDE-3492, 7-roller track frame, equipped with crankcase guard, pull hook, lights, push plate and rear cable control. In good operating condition. Cleaned and painted. U-201. F.O.B. Detroit, Michigan—$7,500.00.

International TD24 Tractor, serial No. TDE-3167, 7-roller track frame, equipped with crankcase guard, pull hook, lights, radiator guard, Bucyrus-Erie Straight Dozer and rear cable control. In good operating condition. Cleaned and painted. U-205. F.O.B. Detroit, Michigan—$9,500.00.

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WE CARRY EVERY TYPE OF TIRE & TUBE TO SUIT YOUR PURSE OR PURPOSE

USED CIVILIAN & MILITARY TYPE TIRES

600/16	6 ply	8.95
600/16	6 ply	8.95
600/17	6 ply	8.95
700/15	6 ply	11.95
700/15	8 ply	13.95
600/20	6 ply	9.95
750/16	8 ply	15.00
700/16	6 ply	15.00
750/18	8 ply	15.00
750/20	8 ply	14.95
750/20	10 ply	24.95
900/16	8 ply	14.95
900/20	10 ply	20.00
1000/20	10 ply	25.00
1100/22	12 ply	27.50
1100/20	12 ply	27.50
1200/20	14 ply	32.50
1100/24	12 ply	27.50
1400/24	20 ply	65.00

MILITARY JEEP TIRES

600/16	6 ply	11.95

60% Unused—Perfect

NEW and UNUSED GOV'T SURPLUS TIRES

700/15	4 ply GDY	N.D. 2nd	22.95
700/16	6 ply GDY	N.D. 2nd	29.95
600/20	6 ply NEW HI-WAY	1st	17.95
750/16	8 ply UNUSED N.D.	1st	28.00
750/20	8 ply UNUSED N.D.	1st	28.00
900/16	8 ply UNUSED N.D.	1st	34.95
700/20	8 ply NEW HI-WAY	1st	39.95
900/20	10 ply UNUSED N.D.	1st	50.00
900/24	12 ply NEW N.D.	2nd	55.00
700/15	6 ply NEW HI-WAY	1st	29.95
700/15	8 ply NEW HI-WAY	1st	34.95
1000/22	12 ply UNUSED N.D.	1st	60.00
1100/20	12 ply UNUSED N.D.	1st	60.00
1100/20	14 ply UNUSED N.D.	1st	65.00
1100/20	12 ply Unused Hi-Way	1st	60.00
1100/20	12 ply New Roadlug	2nd	90.00

NEW FORK LIFT & LOW BED TIRES

600/9	6 ply Gdy Roadlug	2nd	21.95
750/15	10 ply Gdy Himiler	1st	44.50
825/15	14 ply New Surplus	1st	59.95
900/10	10 plp Gdy Rib	1st	60.00
900/15	12 ply Gdy Himiler	1st	69.95
1000/15	14 ply New Surplus	1st	75.00

USED LOW BED & FORKLIFT TIRES

600/9	6 ply 9.95	825/15	12 ply 27.50
750/18	8 ply 15.00	825/15	14 ply 29.95
750/15	10 ply 21.00	1000/15	12 ply 27.50
750/10	10 ply 25.00		

FRONT LOADER & LOGWAGON EXTRA HEAVY DUTY TIRES

1400/24	20 ply	150.00

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Non-Directional Used Tires
Extra Heavy Duty
750/20 8 ply... 14.95
Guaranteed Serviceable
Excellent for on or Off The Road Service

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Loggers - Quarry Special

900/20 30.00
EQUAL TO 10 ply
USED SURPLUS
NON-DIRECTIONAL

Non-Directional
SURPLUS-UNUSED
TIRE & TUBE
750/20 8 ply
22.95
FULL RETREADED
LUG DESIGN

Non-Directional Mud & Snow Surplus Take-Off Tires & Tubes
90% to 95% Unused

750/16	8 ply	95% Unused	22.50
900/16	8 ply	95% Unused	20.00
750/20	8 ply	95% Unused	25.00
900/20	10 ply	95% Unused	42.50
1100/18	10 ply	95% Unused	30.00
1000/22	12 ply	95% Unused	50.00
1100/20	12 ply	95% Unused	55.00
1200/20	14 ply	95% Unused	60.00
1400/24	20 ply	95% Unused	100.00

NEW AND USED SURPLUS GRADER AND EM TIRES

900/24	12 ply New N.D.	2nd	$5.00
1400/20	10 ply Firestone E.M.	1st	125.00
1400/20	12 ply N.D. 90% Unused		65.00
1400/24	10 ply Used Grader		60.00
1400/24	16 ply New N.D.	1st	125.00
1400/24	20 ply Unused N.D.	1st	150.00
1400/24	16 ply Hi-Way—Unused		125.00
1050/24	12 ply N.D. unused	1st	75.00

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HEAD BAND MILL

1—10 ft. R. H. Allis B. roller bearing
Top wheels 15" face, bottom wheel 12" face
Electric guide 3 hp final 45 lift Electric strain 3 HP final 45
New top wheel spl. cut
Bevel friction drive for outfeed roll on band mill 10"x8" paper bevel friction 35x8 iron bevel friction
1 extra old top wheel 10 ft. x 15"—5/8" rim
Shaft 5 5/8" dia. includes three saws.....$5,000.00

HEAD CARRIAGE

4—72" screw head blocks (Allis) 4" pitch Screws, taper knees, cant hook dogs
#4 Trout Set rope drive
3-7/16" set shaft grease tight boxes
120 ft. V track 50# T rail on plates ½x8"
240 ft. track 90# T rail on plates ½x8"
8-trucks 2 wheel 1 V, 2 flat, 15" dia. 3-7/16" axles off-sets on carriage
1 trailer, 4 trucks 15" wheels, 1 V, 2 flat, 3-3/16" axles and couplers and off-set less motor for set works $2,000.00

HEAD CARRIAGE FEED

1 Sumner 43x16" camel back
10x10 spur pinion 38x10 spur gear
6—7/16" shaft 4 8"x24" flanged drum
2—72" carriage rope sheaves shaft and boxes 1½" $1,500.00

TRIMMERS

1 Sumner 22 saw overhead—capacity 12"
24 feed in chains #78—8 ft.
11 feed in chains #78—10 ft.
30" saws—belt drive—with belts
babbitt bearings
for direct connection through flexible couplings

18—8"x54 pipe rolls R. G. drive dbl. sprockets back of trimmer $4,000.00
2—Sumner 24 ft. air trimmers saws spaced 0-6-8-10-12-14-16-18-20-22-24 with feed chains #78—10 ft. centers 30" saws capacity to 12" with saws, belts and chain $2,250.00

FILING ROOM

1—48x14x4 leveling block 800# 20c..... 160.00
2—12x12x8 hand saw anvils ea. 200# 30c ea. 60.00

MISCELLANEOUS

1—Stencil machine 75.00

RESAW DEPARTMENT

1—Marshon 7 ft. LH machine
L.H. Jenkins quick set overhead drive, babbitt bearings
9" face—top wheel ¾" thick
without infeed rolls, less drive motor
4 saws $1,500.00
1—Yates 54" left hand, Babbitt bearings 6½" face, line bar completely rebuilt.....$5,000.00

CARRIERS AND LIFT TRUCKS

		YEAR	
1	Utility #592	1939	$ 750.00
1	Utility #571	1938	750.00
1	Hyster #1204	1944	1,500.00
1	Hyster #79077	1952	2,500.00

DRY KILNS

2—dbl. track Moore kilns $7,500.00

SAWMILL MACHINERY

1—24 Trout Set Works, less drive
About 300 ft. new 1¼x10 E. G. oa. log haul chain 9.00 ..... 2,700.00

MISCELLANEOUS

25 new C. S. log haulchain (new) 40.00 ea. $1,000.00
1 set (4) Allis screw head blocks
72" plain knees cant hook dogs
2—steel dogs, gears and set shaft rebuilt.... 750.00
1—Cummings Diesel power unit 200 HP.... 2,000.00
1—Cummings Diesel power unit 150HP..... 1,500.00

POWER HOUSE

1—Willamette 72x18 150 HP 150# A.S.M.E. code-built 1923 complete, less stack..... $1,500.00
2—P.S.M.D. 72x18 150 HP ea. 150# A.S.M.E. built 1941 $2,500.00 each 5,000.00
1—Shipping Board boiler (water tube) 275 HP 400—3" tubes 6 ft. 5" to 7 ft. 9" long stack 4 3"x104 ft. 42"x11 ft. drum—wt. 55,000# 1,000.00
1—B&W Water tube, 5 10 HP, 216—4"x18 ft. tubes
2—4 2" drums 24 ft. long 200# A.S.M.E. built 1908 stack 60" x 100 ft. 4,000.00

PUMPS

2—boiler feed pumps, 3" x 1½"—motor drive 3550 speed 440 ft. head—250 gals. 50 HP Allis 3600 motor $1,000.00 each 2,000.00
1—General Electric 750 KW 80% PF, 480 volt, 1800 RPM, 3 phase 60 cy, mixed pressure steam turbine generating unit designed to operate on 165 lbs. gauge and 15 lbs. absolute at the throttles. Steam turbine SER. No. 5899 Form "C" Generator Serial No. 293 085 .....$5,000.00
1—Barometric condenser with intake and exhaust piping.
1—General Electric 500 Kw. 80% P.F., 3600 RPM, 480 volts, 3 phase, 60 cy. condensing steam turbine generating unit designed to operate on 150 lbs. gauge at the throttle Steam turbine Serial No. 7385. Form "G". Generator Ser. No. 195 560. Motors: 5 HP to 50 HP, 440 Volt.....$4,000.00
1—Barometric condenser with intake and exhaust piping.

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1—3 HP 56 R.P.M. Sterling
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1—3 HP 68 R.P.M. U.S.
1—5 HP 74 R.P.M. G.E. Western
1—5 HP 45 R.P.M. G.E. Foot Worm
2—15 HP 56 R.P.M. Sterling

MOTORS AND TRANSFORMERS

2—2 HP, 1800 R.P.M. Century
1—2 HP, 1800 R.P.M. Howell
3—250 KVA 7200/ 220/ 440 V
3—200 KVA 7200/ 220/ 440 V

USED MACHINERY

1—1½ YARD Marion Shovel D 13000 motor, 60' boom, dipper stick and bucket
1—14.6 C.F.M. 3 HP motor, 80 G tank Curtis Compressor Unit
1—40 ft.—1½ yr old bolter burner & 7½ HP blower (almost new)
1—12" Model B 1 HP Irvington 12" trim saw

NEW—FRICK PORTABLE SAWMILLS

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New G.E. 5 HP—1800 r.p.m. motor with switch and pushbutton ---------- $100.00
New Westinghouse 3 HP—1800 r.p.m. single phase motor ---------- $125.00
New—(shopworn) G.E. 200 HP—1800 r.p.m. ball bearing motor ---------- $1650.00
Used—G.E. 200 HP—720 r.p.m. Rebuilt and guaranteed motor ---------- $1750.00
1—10 HP——1200 r.p.m. motor totally enclosed connected to 20½ to 1 heavy-duty Jones reduction gear. Suitable for log haul ---------- $410.00
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100 HP Westinghouse 1800 r.p.m. ball bearing ---------- $750.00
60 HP C.W.—1800 r.p.m. ball bearing ---------- $500.00
3 HP Gear Head Motors ---------- $225.00
5 HP Gear Head Motors ---------- $295.00
7½ HP Gear Head Motors ---------- $350.00

MISCELLANEOUS SPECIALS

3-Ton new surplus chain blocks ---------- $150.00
5-Ton new surplus chain blocks ---------- $195.00
#4-71 G.M.C. factory model Diesel motor ---------- $1750.00
#6-71 G.M.C. factory model used Diesel motor ---------- $2300.00
Cadillac motor mounted in frame ---------- $550.00
Double-Drum hoist with Hercules motor ---------- $1400.00
New TIROL 23" Gang Saw Mill complete in stock in Portland ---------- $10,000.00
New portable type SACHS Gang Mill 24" ---------- $8,950.00
New 4x42" Evergreen Edger - $1,650.00
Slightly used—4x42" Newport Edger w/ motor ---------- $1,500.00
New Vollmer Gang-saw-grinder ---------- $1,400.00
Used Armstrong No. 2 L.H. band-saw-sharpener ---------- $750.00
Axial Flow Fan—8000 c.f.m. ---------- $225.00
Used Turner 14-ft. portable sawmill $600.00
2-Ton American cable hoist w/trolley ---------- $750.00
1-Ton Metior cable hoist ---------- $500.00

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A History of Western Trees—by Donald Culross Peattie $8.00
Aerial Photographs in Forestry—by Stephen H. Spurr 6.00
Applied Silviculture in the U.S.—by Westveld 6.00
Calders' Forest Road Engineering Tables 5.00
Chemical Processing of Wood—by Stamm and Harris 12.00
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Forest Soils—by Lutz & Chandler 5.50
Forest Valuation—by Chapman and Meyers 6.00
Forestry Handbook—by Forbes 15.00
Harvesting Timber Crops—by Wackerman 5.00
Knife Grinding & Woodworking Manual—by C. G. Monnett, Jr. 5.00
Knowing Your Trees—by Collingwood & Brush 5.00
Logging—by Nelson Brown 5.50
Lumber—by Nelson C. Brown 4.75
Lumber & Log Exporters Guide—by Brereton 3.00
Modern Plywood (Second Edition)—by Perry 6.00
Practical Lumberman, 6th Edition—by Brereton 2.00
Principles of Silviculture—by Baker 5.00

3 percent sales tax

Add 50c for Canada and Foreign—

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THE LUMBERMAN

71 Columbia St., Seattle 4, Wash.

For Sale

6—20' x 80' Moore Dry Kilns completely equipped including steel roof trusses, recording equipment and 30 HP G.E. drives. Would prefer to sell as complete unit. For further description and price please write TL Box 57, c/o THE LUMBERMAN
71 Columbia St., Seattle 4, Wash.

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BUYERS GUIDE and CLASSIFIED SECTION

THREE USED PORTABLE SAWMILLS ON WHEELS FOR SALE

All available for immediate delivery—Terms
Frick 32" opening carriage—cuts 10-15M' per day
Crooks-Johnson 36" opening carriage—cuts 15-20M' per day
Calvert 48" opening, automatic, riderless carriage cuts 20-30M' per day. Double saw husk.
WIRE, WRITE, OR PHONE:
IDACO ENGINEERING & EQUIPMENT CO., 3200 Peralta St., Oakland, Calif., Phone: OLympic 2-2400

For 55 Years Headquarters for Sawmill Machinery

EDGERS

Used 6x48 Fabricated Stub Edger
Used 12x84 Allis Edger—with gang collars
Used 4x36 Newport BB Table Edger
Used Heaps 6x30 Stub Edger
Used 4x42 B Newport Stub Edger
Used 10x60 Allis LH roller brg. Stub Edger
Used Burton 6x42 4-saw Stub Edger
Used 6x44 Table Edger, double roll, BB
Used 3 saw vertical edger by Machinery Potts, BB
Used 4"x36" Enterprise table edger

FEED WORKS

Berry Hydraulic Feed, complete unit in stock
16x18 Allis Steam Twin feed self-contained
10x42 Shotgun Feed
New 5x6 SpeeDee Twin Feed
American 6x12 dbl. cyl. single drum feed

RESAWS AND RIP SAWS

Used American #15 straight line rip saw
Used 54" Mershon, anti-friction bearing, tilt rolls
Used Pacific Circular Resaw
Used J. A. Fay & Egan 42" band rip saw
American #2 self-feed circular rip saw
Used 42" Cordesman Band Resaw
Used Mershon 84" Resaw, sawmill type, quick set
Used 40" #4 Band Scroll Resaw
Used Mershon 66" Resaw anti-friction, quick set
Used Fay & Egan 30" Circular Resaw, BB arbor

PLANERS—MOULDERS—SURFACERS

S. A. Woods 404C1 Electric 8-knife planer
Used Berlin #94X 6x15 6K planer-matcher
New 4"x13" BB Marathon planer-matcher
2"x4" Eaglesfield electric moulder-frequency changer
Used tilting Lumber Hoist with floor chains
Stetson Ross #4 12"x30" Timber Sizer
24" Buss Model H, DMD—7½ HP single surfacer
Newman #99 6x15 6K planer-matcher
Used Frank 5x24 planer
Used Berlin #95 6x30 matcher with ripper
Used American #22 4"x18" planer, BB heads

LOG AND CANT GANGS

Linck Gangsaw for logs or cants 28x28—In Stock
Marathon #200 Gangsaw, 13x30—for Cants
Marathon #120 Gangsaw, on display, for Logs or Cants
Used 8x32 Wicks Cant Gang
Used 16"x30" Mill Engineering gang

MARATHON GANG MILLS

We've Got 'Em In Stock
Increase Your Production—Lower Your Cost
100 in Operation in the West

HEAD RIGS AND CARRIAGES

New Wheland 7' RH Band Mill—takes 14" blades
New Wheland #36 Portable Mill
Used American #3 Sawmill
Portland Iron Works 60" opening headblocks
Corinth Hydraulic Sawmill, riderless carriage
6' Yates Band Mill, all cast, LH
9' Union Band Mill, roller bearing, RH
#4, Trout Set Works for screw block
54" Berlin Pony Band Mill, 7" blades
3 Sumner 72" opening headblocks
Sumner Iron Works 3-block R&P 36" opening, tapers
54" opening screw type headblocks
Sumner Power Set Works for screw block

MILL EQUIPMENT

New Wheland 1 man 2-saw Trimmer, electrically controlled
Used 20' Portland Iron Log Turner
Used 3-arm Log Stop & Loader, 42" arm, 16x20 cyl.
Used 2-arm Log Stop & Loader, 36" arm, 12x16 cyl.
4—Used Gerlinger Carriers 42"
New Willamette Iron Works Swede—rubber rolls
Steel Deck with Flippers
Used 10" and 12" full oscillating Nigger
Hyster Karry Krane

KNIFE GRINDERS

New Dependable #99A5 36" motor drive, automatic knife grinder
New #101A Dependable Sidehead Grinder
New Defiance 38" motorized Automatic Knife Grinder
Used Buffalo 28" cup wheel knife grinder
Used 36" Fay & Egan #353 automatic knife grinder
Used American 32" straight wheel knife grinder
Used American 30" knife grinder
Used BT&B 30" automatic straight wheel hog knife grinder
Used Covel GK 38" late type knife grinder
Used set up stands

FILING ROOM EQUIPMENT

New Vollmer Gangsaw grinder
New Armstrong #54 Circular Saw Gummer
Used Armstrong #6 Band Saw Grinder
New Armstrong #4 Stretcher Roll
Used Covel Carbide Saw Grinder
Used Hanchett #724, 36" Automatic Circular Saw Grinder
Used Covel #140 automatic Band Saw Grinder
New Armstrong #4 Band Saw Grinder
New Marathon Gang Saw Grinder
Used Acme Hand Gummers
Used Covel #90 LH Band Saw Grinder
Used Hanchett #250 LH Band Saw Grinder, motorized
Used 24" #83 Covel Gang Saw Grinder
Used Covel #150 RH Band Saw Grinder
New and Used Leveling Blocks
Used #724 automatic circular saw grinder, 8" to 24"
Used #4 band saw grinders
Used Barnhart band wheel grinder

HOGS AND CHIPPERS

Used #35 Sumner Hog, anti-friction bearing
Used 60" Hansel-Dunbar Disc Chipper, anti-friction brg.
Used Williams #4XA Hammer Hog 20x44 opening
Used #45 Diamond Hog
Used #40 Diamond Hog
New Diamond #25 Hog
New Diamond #35 Hog
New Diamond #145 Chip Mill
New Diamond #145 Hog

COMPRESSORS

65 cu. ft. New Worthington air cooled
123 cu. ft. Used Worthington air cooled
160 cu. ft. Used Ingersol Rand Portable
198 cu. ft. Used Sullivan air cooled
230 cu. ft. Ingersol Rand Portable
324 cu. ft. Used Ingersol Rand water cooled

NEW AND USED PUMPS

Underwriter approved Firepumps—many sizes
Used Worthington 4" Centrifugal—1000 GPM
Log Wash units complete with Spray Ring
Used 6x4x6 Worthington Duplex Boiler Feed
New 150" Boiler Feed Turbine Pump
New 3x2x3 Worthington Duplex Boiler Feed

MOTORS

Used 100 H.P. 1200 RPM—BB
Used 75HP 1200 RPM BB GE
New 100HP 1200 RPM BB Allis-Chalmers
New 150HP 1200 RPM Allis-Chalmers BB
New 150HP 900 RPM Allis-Chalmers BB
Used 150 HP 720 RPM GE
New 750 Watt gas driven Generator
Used 25 KVA Westinghouse w/controls
Used 200HP 600 RPM BB FM
Sawmill type gearmotors and reducers 3 to 10HP, 30-135 RPM
Big stock of used motors, large and small

ENGINES AND BOILERS

62"x20' 100HP Code Boiler 195#
11x12 Ames Center Crank 48x12 Pulley
54"x14" HRT Ideal for dry kiln
72"x18" 160HP Code Boiler 150#
Caterpillar Diesel Engine—like new
New 20HP Diesel Engine FM

MISCELLANEOUS

Curtis 4' x 8' automatic stroke sander
Used Irvington 60" arm swing saw
Used Hesse-Ersted 6 HP motorized saw arbor
36" Crescent ball bearing band saw
36" Moak ball bearing band saw
American Columbia 48" oscillating 3 drum sander
Mereen Johnson box board squeezer
Berlin 30" 3 drum sander
Used Morgan box board matcher
Mereen-Johnson combination end printer + precision trim machine

HOISTS AND CRANES

Used American dbl. drum 24x24 40HP
New Budget Hoists in stock
New 5 ton General Utility Beebe Bros. Hoist
New 10 ton Schurman dbl. Drum Hoist
Used Skagit single drum for V-8 engine
New P&H 1 ton Electric Zip Lift

SHOP TOOLS

20x12 Shoemaker QC Lathe
#3 Kempsmith Geared MaxiMiller
8x16 Rachine Hydraulic hack saw
Used Oster Pipe & Bolt Threader
2½' Prentice Radial Drill

Agents for LUMBER DRYALATORS, INC.—High Speed Dry Kilns. DIAMOND IRON WORKS—Fuel Hogs and Chip Mills. SCHURMAN MACHINE WORKS—Edgers, Hoists. BERRY MFG.—Hydraulic Carriage Drives. WORTHINGTON CORPORATION—Compressors, pumps. WHELAND COMPANY—Band Mills, Circular Sawmills, Edgers, Trimmers, Carriages. IRVINGTON—Trim Saws. ARMSTRONG MFG.—Filing Room Equipment. DEPENDABLE—Knife Grinding Equipment and Moulders. ALLIS-CHALMERS MFG.—Motors, Controls, Drives. COMET—Radial Arm Saws. DAVIS & WELLS—Woodworking Machinery. BE GE Hydraulic Log Turners. P & H—Hoists. BINKS MFG.—Paint Spray Equipment. MARATHON AND LINCK Gang Mills. CURTIS MACHINE CORP.—Sanders.

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"WHEN YOU THINK OF MACHINERY, THINK OF PORTLAND MACHINERY"

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The LUMBERMAN'S Advertising Index for December 1955

These advertisers BELIEVE in the forest industries and are well prepared to serve you.

A

Air Applicator Co., Inc. 147
Albany Machine & Supply Co. 153
Allied Northwest Machine & Tool Corp. .. 151
Allis-Chalmers Mfg. Co. 103
Alloy Welding & Fabricating Co. 149
American Chain & Cable Co. 142
American Sheet Metal Works 133
Anderson Blowpipe & Mfg. Co. 151
Archer Blower & Pipe Co. 146

B

Bach Machinery Corp. 125
Bader & Carroll 151, 158
Bader Machinery Co. 155
Baldon, F. E. 154
Baldwin-Lima-Hamilton Co. 54
Banta Saw Works 156
Bethlehem Pacific Coast Steel Corp. 29
Broderick & Bascom Rope Co. ..... 4th Cover
Bruning Company, Inc., Charles 154
Bucyrus-Erie Company 72

C

Caldwell Machinery Company 158
Carthage Machine Company 136
Caterpiller Tractor Company ..... 9 and 33-40
C & D Welding Service Inc. 144
Central California Blowpipe Co. 146
Chain Gear, Inc. 113
Champion Friction Company 147
Chapman Chemical Company 27
Chevrolet Motor, Div. of General Motors .. 74
Chrysler Corp., Industrial Engine Div. 52
Clark Equipment Co., Industrial Truck Div. 66, 67
Coe Manufacturing Company 145
Columbia Rubber Mills 146
Colorado Fuel & Iron Corp., Wickwire Rope Div. 73
Conveyair Company, Ltd. 131
Corley Manufacturing Co. 50
Crown Machinery Co. 155
Cummins Engine Company 42, 43

D

Davies, E. C. 146
Detroit Diesel Engine Div., General Motors Corp. 26-58
Diamond Pole & Piling Co. 156
Dichter Co., The Theodore 157
Ding's Electronics, Inc. 121
Dodge Manufacturing Co. 142

E

Eaton Manufacturing Company 48
Ederer Engineering Company 24
Electric Steel Foundry 143
Eugene Truck & Machine Co. 149
Euclid Division, General Motors Corp. 53

F

Fafnir Bearing Company 68
Federal Pipe & Tank Company 153
Foster Company, L. B. 151
Fuller Manufacturing Co. 64
Fruehauf Trailer Company 97

G

Gans Tire Company, O. 157
Gardner-Denver Company 60
Gates Rubber Company 62
Gear Engineering & Mfg. Co. 149
General Electric Co., Electronics Div 10
General Petroleum Corporation 23
Gerrard Strapping, Div. of U. S. Steel Corp. 115
Gerlinger Carrier Company 65
Goodyear Rubber & Asbestos Co. 155
Goodyear Tire & Rubber Co. 1
Gorton Company, The 151
Greenlee Bros., & Co., Mortising & Boring 142
Gunderson Bros. Engineering Corp. 117

H

Hanna Engineering Works 118
Homelite Corporation 15
Howard Cooper Corporation 2
Huss Lumber Co. 155
Hyster Company ..... 2nd Cover

I

Idaco Engineering & Equip. Co. 159
Industrial Brownhoist Corp. 56
Industrial Components, Inc. 153
Industrial Development Co. 137-154
Industrial Machine & Pump Co. 154
Instrument Sales & Service Co. 153
International Harvester Co., Ind. Power Div. 6-7-45
International Harvester Co., Motor Truck Div. 95
Irvington Machine Works 57

J

Jacksonville Blow Pipe Co. 131
Jeffery Manufacturing Co. 75
Johnson & Johnson 154
Jones & Orth Cutter Head Co. ..... 3rd Cover

K

Kimwood Machine Works 156
Klamath Iron Works 137
Klamath Machine & Locomotive Works .. 59

L

Lawson Stacker Company 136
Leschen Wire Rope Div., H. K. Porter Co., Inc. 93
LeTourneau, Inc., R. G. 13
Link-Belt Speeder Corporation 47
Luber-finer, Inc. 114
Luster Engineering & Machine Works .. 146

M

Mack Motor Truck Corporation 108-109
Mar Hook Equipment, Inc. 146
Marion Power Shovel Co. 61
Mater Machine Company 145
Mattison Machine Works 69
McCulloch Motors Corporation 20-21
Mereen-Johnson Machine Company 101
Michigan Tractor & Machinery Co. 157
Monarch Forge Machine Works 119
Moore Dry Kiln Company 130
Morse Chain Company 14
Murray Manufacturing Co., D. J. 124

N

Newman Machine Company, Inc. 99
Nicholson Manufacturing Co. ..... 55 & 155
Northwest Chains & Sprockets, Inc. 147
Northwest Engineering Company 5
Northwest Marine Iron Works 122
Norton Company, The 25

O

Ohio Knife Company 41
Oregon Saw Chain Company 135

P

Pacific Machinery Co. 153
Pacific Saw & Knife Co. 151
Peters Company, The 142
Portland Chain Mfg. Co., The 139
Phelps Bros., The 153
Portland Machinery Company 148-150-159
Production Management Engineering Assoc. 154

R

Rambo, W. H. 154
Raybestos-Manhattan, Inc., Manhattan Rubber Div. 32
Rees Blowpipe Mfg. Co. 153
Roberts Motor Company 112

S

Salem Equipment & Supply Co. 144
Schnitzer & Wolf Machinery Co. 158
Schurman Machine Works 143
Scougal Rubber Company 153
C. D. Schultz & Co., Inc. 154
Seattle Boiler Works 153
Shortt Saw & Knife Co. 148
Signode Steel Strapping Co. 143
Skagit Steel & Iron Works 135
Skeen Electric Works 156
Smith Lumber Co., Ralph L. 133
Smythe Company, Ray 149
Soderhamn Machine Mfg. Co. 46
Soule Steam Feed Works 153
Spear & Jackson, Ltd. 122
Standard Oil of California 19
Star Machinery Company 155
Stetson Ross Machine Co. 105
Strunk Equipment Co. 3
Sumner Iron Works 120

T

Terminal Sales Building 146
The Thew Shovel Company 107
Tide Water Associated Oil Co. 44
Timken-Detroit Axle Div., Rockwell Spring & Axle Co. ..... 16-17 & 70-71
Truck & Industrial Equipment Co. 3

U

Union Oil Company 4
Unit Crane & Shovel Corp. 51
United States Steel Corp., Gerrard Strapping Div. 115

V

Valley Lumber Company 155

W

Walker Saw & Mill Service 146
Ward Construction Company 154
Warn Mfg. Co. 111
Washington Iron Works 91
Weaver, Charles 151
Western Steel & Supply Co. 131
Weyerhaeuser Timber Co. 157
Wilder Saw Works 149
Willys Motors, Inc. 110-111
Winkel, V. J. 154
Wood & Associates, K. B. 154
Wood Company, R. D. 49
Woods Machine Company, S. A. 30-31
Worthington Corporation 63

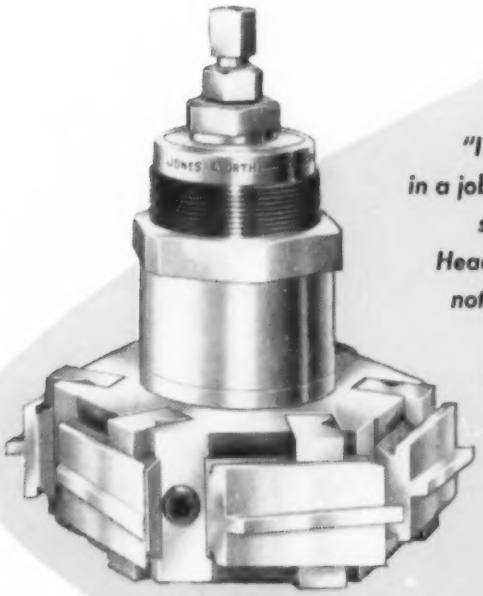
Y

Yates-American Machine Co. 11

Z

Zidell Machinery Company 116

"The sweetest running units in the plant!"



"I sure don't want any EXTRA worries in a job like mine! That's why we standardized on JONES & ORTH Cutter Heads a good many years ago. There's nothing in the plant that gives us better output per dollar with less grief, than these heads do. We're fussy about quality here too!"

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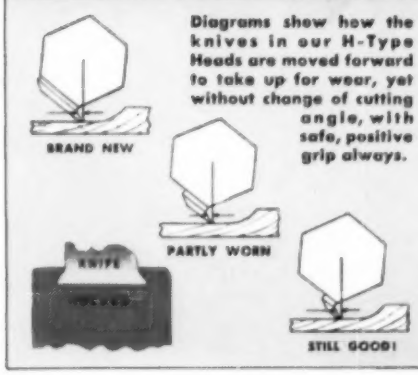

Diagrams show how the knives in our H-Type Heads are moved forward to take up for wear, yet without change of cutting angle, with safe, positive grip always.

To get on top . . . and *stay* there, with tough production schedules, there's nothing that will do *more* for you, or take a bigger load off your mind, than JONES & ORTH Cutter Heads!

It's no accident that you get more for your money in our cutter heads. After all, that's all we make . . . just the *finest* cutter heads that money can buy! Our specializing pays off . . . *for YOU!*

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Write today for the name of our dealer nearest you! Address either our Seattle or Memphis branch.

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says

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Esses Logging Co., Quinault, Wash.

In three short words successful lumberman Otis Fairchild sums up a world of good experience he has had with B & B Yellow Strand Wire Rope when he says: **"Good wire rope!"**

The company uses B & B Yellow Strand on its high-rig and donkey loader, and for more than 4 years it has given them good service handling thousands of heavy logs.

Choose Yellow Strand for your rope needs, and you've made a wise decision. The wire in Yellow Strand ropes is drawn to the highest and most rigid specifications. It is resistant to abrasion and strong and tough. It is carefully laid up by modern B & B equipment and thoroughly inspected. Yellow Strand combines the perfect balance of strength, hardness, toughness, ductility and ability to withstand bending fatigue . . . this accounts for its long life and good performance.

This is why more and more lumbermen are changing to Yellow Strand rope — why they, too, are saying, "It's good wire rope!" We believe that you will, too! Call your Broderick & Bascom distributor today, or write us direct for more information.

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